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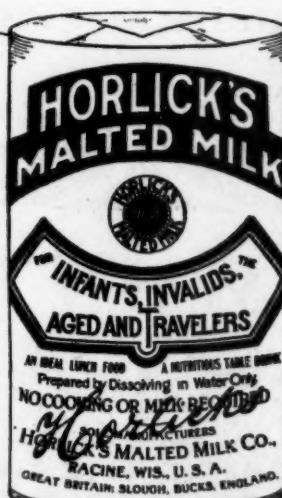
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General Scientific

THE POSSIBLE RELATIONS OF POLIOMYELITIS TO HUMIDITY AND OTHER ATMOSPHERIC CONDITIONS.

JACQUES W. REDWAY, F. R. G. S.

Mount Vernon, N. Y.

It may be taken as granted that the epidemic occurrence of certain contagious and infectious diseases is related to climatic conditions, and doubtless this is the case. In the editions of good old Doctor Ayer's almanac, half a century ago, one could find weather forecasts that never, never failed: "February—snow and severe cold; April—now expect showers; July—look for intense heat and heavy rains." The modern physician's calendar reads along similar lines: February—this is the time for scarlet fever; August—summer complaints may be expected this month."

All true, but why? The bacteriologist has told us why yellow fever is a summer disease. Step by step, the bacteriologist is breaking down the screen that hides cause from effect in other diseases; indeed, modern medical research is steadily plugging at the notion that the first step in prevention is to find the cause. Granted that blunders are made, a blunder discovered and set forth is one step nearer to the truth.

The heart-breaking epidemic of 1916 has stimulated research to an activity hitherto unknown. Some has been wise; some, let us admit, has been otherwise. Perhaps it would not be impertinent to add that the only normal people were those who stood nobly to the front lampooning the fellows who were burning midnight oil in order to aid dying children.

Poliomyelitis is essentially a summer malady: therefore it is the fierce summer heat which causes the spread of the disease. Is it? Let us examine the temperature conditions within a radius of forty miles. The temperatures were recorded by observers of the United States Weather Bureau trained to the thoroughness which the Weather Bureau exacts. The instruments used are the best that human ingenuity can provide. The figures given therefore may be received with confidence; and, in order to show the closeness of the results, fractional degrees, usually omitted, are included. The two columns under each month are respectively the average maxima or day temperatures, and the

average minima or night temperatures for each month.

	July			Aug.			Sept.		
	[Av.]	[Av.]	[Av.]	[Av.]	[Av.]	[Av.]	[M.]	[M.]	[M.]
	Mx	Mi	Mx	Mi	Mx	Mi	Mx	Mi	Mi
N. Y. C.	80.5	66.9	81.5	65.8	74.1	57.9	71.1		
Mount Vernon	80.8	65.5	71.3	63.4	75.2	55.1	70.2		
Scarsdale	80.8	64.4	80.9	62.5	73.4	53.7	69.3		
Mt. Hope	81.3	63.8	82.1	61.1	75.5	53.0	69.5		
Bedford Hills	80.9	63.7	81.8	59.8	74.0	52.5	68.6		
									Dr. Louis Shalet

Temperature conditions reveal nothing. July, August and September were simply normal months, with about the same number of warm spells and cool spells as usual. As a rule, the average night temperatures were cold enough to retard incubation, but it is doubtful if any night was cold enough to arrest it. With the onset of each warm spell there was a prediction of increase in the number of new cases—and the prediction was verified.

But was the increment due to warmth alone? If one insists on this view then another very important possible factor must be disregarded, namely—atmospheric moisture. In the persistence of a high per cent. of humidity all previous records along the Middle Atlantic coast were broken last summer. The excessive humidity was due, not to a change in the position of the Gulf Stream, as was charged by several newspapers, but to the fact that long-continued southerly winds pushed an enormous volume of warm water against the coast. In addition to this, southerly winds themselves are usually moist. The combination of the two factors at times made the air much like a steam bath.

At Mount Vernon the chlorine content of the air was manifestly above normal, but as the tests were qualitative and not quantitative, no values can be given. Black bulb temperatures were slightly below normal, due to the excessive moisture; low humidity usually accompanies high black bulb temperatures.

Investigation of the germ content of the air is not a part of the work of this laboratory; the organic as well as the inorganic floating or flying matter that gathers on exposed plates is merely dust. Just why there should prevail a belief that living micro-organisms cannot exist in the open air is a conundrum that I cannot answer; indeed I know from personal experience of but one locality where this belief holds good, namely, the Colorado, Gila and Mojave deserts.

Years ago, when I was the unofficial bacteriologist of a western city, hunting bacteria in all sorts of places was a pastime as well as a business. Time and time again I found plates that were biologically clean and cultures that were clear; time and time again the reverse was the case. In the desert regions the air as a rule was biologically clean. Wounds healed usually by first intention; and when death from traumatic causes occurred, it generally came out of the muzzle of a six-shooter, the breech of which was held by the other fellow. On the coast slope, however, the case was different. With a wind from the mountains, the air was pretty free from micro-organisms; with a breeze across the ciénega it was loaded to the muzzle. In the one case the air was very dry; in the other it was moist.

In the vicinity of Mount Vernon, in spite of the frequent showers, the air during July and August was full of flying and floating dust. Still more, during this period, there was scarcely a day that the dust-slides and plates were not covered with micro-organisms. Some were distinguishable under a half-inch objective; a one-sixth objective revealed a rare study. Even in air that is not excessively moist Dr. L. P. Goldhorn has found pneumococci; he has also established pretty clearly that city reservoirs may be infected with colon bacilli carried as a part and parcel of wind-blown dust. The myxobacteria constitute an important group of micro-organisms from the fact that they form sporogenous masses in the air. The desiccation of these masses liberates countless millions of spores which float in the air.

In general, there seems to be no question about the dissemination of the spores of micro-organisms in dry air as well as in moist air provided that the source of infection is nearby, moisture in the air, however, is a *sine qua non* for the organisms themselves. But whether this is true of disease germs in general it cannot with certainty be claimed. It certainly is the case of some epidemics; certainly it is not in others so far as human knowledge can assert. One thing, however, seems fairly certain; both the coldest winter winds and the hottest summer blasts carry flying dust that is full of the possibilities of life.

In case of the epidemic of last summer, so far as evidence goes the disease seems to have a positive relation to atmospheric humidity. The increase of cases, allowing the necessary time for incubation, followed pretty closely after such humid spell. Whether it was actually a case of cause and effect cannot be asserted, but the circumstantial evidence is strong. It is a problem for the pathologist and the bacteriologist rather than for the meteorologist.

In one line of research, the bacteriologist and the meteorologist may work together—with profit—namely, a study of the dust content of the middle air. Roughly speaking there are three dust layers of the air. In thickly settled communities, where the rainfall is sufficient to provide protective vegetation, the lowest layer consists mainly of smoke products and wind-blown street dust—horse dung, various other kinds of desiccated organic matter, and earthy substances. This material is relatively coarse and most of it settles quickly with the dying breeze that lifts it. Incidentally, if the velocity of the air-current be doubled, its carrying capacity is increased sixty-four fold. The velocity of the wind therefore is a factor of considerable importance in the cleanliness of the air. At the altitude of one or two miles, the dust is very fine and remains in suspension a long time—much of it in fact, until it is brought down by means other than its own gravity. It is in this layer of air that the lower cloud matter is formed, by



ETHER-WAVE INDICATOR.
Redway Meteorological Laboratory

the condensation of water vapor on the dust particles. The germs of micro-organisms constitute a part of the content of the dust of the middle air. Higher still, the prevailing dust content of the air consists of motes so fine that they may be classed among molecular rather than molar sizes. There is no line of demarcation between layers; one may say that the size decreases with altitude. Some of the matter of the highest layer undoubtedly is molecular, nevertheless, it is the nuclei of the high cirrus plumes and feather clouds.

A very delicate indicator shows that, during changing weather conditions, ether waves—call them silent electrical discharges, if the term is more meaningful—are very active. Rapid changes in sky polarization indicate that, under these conditions, the dust particles become highly electrified and behave as ionized bodies. When thus ionized their motion seems to be independent of wind-direction until their load of electricity is discharged; when finally they are brought to the earth, they are part of the content of raindrops or of snowflakes—and no other agent combs out sky dandruff half so effectively as a fall of snow. When the proper stimulus occurs, the dust particles—or some of them—are again carried into the middle air. In the upper air a more complete ionization occurs, but the general movement of the dust motes is practically the same as in the middle layer.

Now it cannot be said that the spores of micro-organisms have been electrified and disseminated in much the same manner as are gas molecules, in the meantime projected long distances; and then, after having been brought to the ground in raindrops or snowflakes, have communicated disease. To make such a claim practically is begging the question. All that can be claimed is that the spores belong to the middle or the upper dust layers, that they are ionized (in all probability), dispersed on a grand scale, and then brought to the earth.

Meteorological Laboratory.

THE UNITED STATES TUBERCULOSIS WAR PROBLEM.

GEORGE THOMAS PALMER, M. D.,

PRESIDENT OF THE ILLINOIS TUBERCULOSIS ASSOCIATION; MEMBER OF THE SUB-COMMITTEE ON TUBERCULOSIS OF THE GENERAL MEDICAL BOARD OF THE COUNCIL OF NATIONAL DEFENSE,

Tuberculosis as a War Problem.

Springfield, Ill.

The tragic experience of France and Belgium and the serious situation in the other warring countries of Europe are conclusive evidence that tuberculosis constitutes one of the most important problems of modern warfare.

In France, the disease has become so prevalent as to threaten the strength and integrity of the entire nation. In Belgium it is the great scourge of the civil population. In England, civil, medical and military authorities are struggling to bring about the preventive and curative measures which should have been planned at the beginning of the war.

Forewarned as we are by the experience of other nations, it will be unpardonable if the United States does not take definite steps to safeguard the military and civil population from the wartime tragedy of tuberculosis.

What France and England are suffering was largely preventable.

At the present time, France is asking assistance from the United States in meeting her enormous problem. England is taking hold of her tuberculosis situation as well as she can with her crippled medical forces and is officially demanding that every county and borough shall work out a scheme for caring for the returned tuberculous soldier and is lending financial aid to complete this local organization. Belgium lies helpless, her condition even worse since the forced withdrawal of American relief agencies.

Causes of Increased Tuberculosis in Europe.

Authentic reports, many of them official in character, attribute the great increase of tuberculosis in Europe to the following factors:

1.—Failure to appreciate the importance of tuberculosis under war conditions.

2.—Failure to meet the normal tuberculosis needs prior to the war.

3.—Failure to detect tuberculosis among soldiers at the time of enlistment, due to overwork of examining physicians and insufficient accent on tuberculosis.

4.—Unusual tendency of tuberculous persons to enlist and to conceal their illness.

5.—Conditions in active service fanning incipient or dormant tuberculous infection into active disease; physical, nervous and emotional overstrain, loss of sleep, inadequate food and damp, crowded and insanitary quarters.

6.—Enormous increase of tuberculosis in prison camps due to mental and emotional overstrain, insufficient food, overcrowding and insanitary conditions.

7.—Obsolete methods of detecting tuberculosis among the men in active service whereby the disease is recognized only in an advanced and often incurable stage.

8.—Inadequate hospital and sanatorium facilities necessitating the return of soldiers with active tuberculosis to their families, thus spreading the disease in the civil population.

9.—Increase among the poorer and working classes of the civil population owing to the strain of war, industrial speeding-up and scarcity and prohibitive price of food.

10.—Increase among the families of soldiers due to the necessity for women engaging in gainful occupations, mental anguish, grief and anxiety and the prohibitive cost of food.

11.—Inability to meet the tuberculosis needs of the civil population and of the returned soldiers on account of the drafting of expert physicians and tuberculosis nurses for military service.

The Preparedness Program for the United States.

Taking up the questions of preparedness in the order in which the causes of the disease in Europe were enumerated on a previous page, the following suggestions for "An American Plan" present themselves:

1.—The importance of Tuberculosis as a War Problem was not appreciated by any of the warring nations. According to Dr. Hermann M. Biggs,¹ tuberculosis has never been accorded serious consideration by the health authorities of France. At the present time, Dr. Biggs declares that there are 450,000 persons in France incapacitated by wounds of battle and another 450,000 incapacitated by active tuberculosis and the disease steadily increasing. In England the tuberculosis problem is a serious one, although in times of peace the tuberculosis rate in England is lower than in any other important nation. So far, there is no indication that the United States has come to fully realize what tuberculosis will mean to us in the present war save the appointment of a sub-committee on tuberculosis of the General Medical Board of the Council of National Defense.

2.—The needs of the Tuberculous in normal times have been practically ignored in France. There was no anti-tuberculosis machinery to serve as a nucleus of the organization needed to meet the gigantic problem brought about by the war. England has done more than France; but not enough to meet normal needs. The local tuberculosis organizations of England, however, are the very backbone of the elaborate system the nation is now developing to check the spread of the disease.

The United States may be regarded as standing midway between the total unpreparedness of France and the incomplete preparedness of England. The Federal Government has done nothing; tuberculosis, together with other health problems, being left to the state government.

Some states are reasonably prepared to meet the needs of the tuberculous in times of peace. Others, such as Illinois, are hopelessly unprepared. As a part of an intelligent plan to meet the tuberculosis problem of the war, every community must have ready and waiting the machinery for effective tuberculosis work far in excess of that which would be required in times of peace.

3.—Failure to detect tuberculous infection by the medical recruiting officers is freely admitted in England and France. England is said to be struggling with the problem of having on her hands 100,000 soldiers who have been proven physically unfit and who never should have been passed by her recruiting physicians.

In the United States, the ability of the army medical service, in recruiting an army of a million or more men, will be taxed beyond limit and it will be necessary to enlist the services of many physicians from civil life who are unaccustomed to the examination of recruits and who are in no sense skilled in the early diagnosis of tuberculosis.

An effective program for the control of tuberculosis by the United States, must include more thorough ex-

amination of recruits at the time of enlistment and, probably, the employment of men expert in the diagnosis of early tuberculosis in connection with each group of recruiting stations.

4.—The tendency of the tuberculous to enlist in military service and to make every possible attempt to conceal their true condition, must be borne in mind if we are to eliminate tuberculosis from our military forces. According to Dr. Horace Wilson,² this class of recruits was very numerous at the beginning of the war in England. These recognized consumptives joined the army for the following reasons: (1) Pure patriotism; (2) In the belief that camp life would be beneficial to them; (3) With the feeling that they would as soon die in the trenches as to die slowly at home; (4) In view of the fact that, if they died in service, their families would be provided for through pensions. It is astonishing how many of these recognized consumptives succeeded in passing the recruiting physicians.

5.—Incipient or inactive tuberculosis is fanned into active disease by conditions which reduce the vitality of the individual such as physical, nervous or emotional overstrain, loss of sleep, inadequate food and damp, crowded and insanitary quarters. On this account every point should be strained to eliminate the incipient consumptive from the recruits at this time. While the incipient consumptive may improve in condition in concentration camps, he will go to pieces under the stress of service at the front.

6.—The obsolete methods of determining tuberculosis among the men at the front has been responsible for the spread of the disease throughout France and for the unnecessary death of many French soldiers. This is the reliance on the presence of tubercle bacilli in the sputum as the only conclusive evidence that the individual is actively tuberculous.

It is interesting to note that the Surgeon General of the national guard of a foremost state, recently took the stand, in an official communication, that the presence of bacilli in the sputum is the only positive evidence of tuberculosis. It must be borne in mind that this wholly untenable doctrine is accepted by many physicians whose surgical and general medical skill would justify their acceptance as army surgeons. To control tuberculosis during the war, the United States must adopt standards of diagnosis in advance of those now accepted by the rank and file of the medical profession.

7.—Inadequate hospital and sanatorium facilities have added materially to the mortality among the tuberculous soldiers and contributed to the spread of tuberculosis in Europe. France, in her struggle to meet the tuberculosis problem, hopes to have 15,000 sanatorium beds available at the end of 1917;—15,000 beds for her 450,000 tuberculous people!

In England, where sanatorium provisions were much more nearly adequate prior to the war and where, through health insurance and government grant, all soldiers are entitled to thirteen weeks of sanatorium care, Dr. Cuthbert G. Welch³ has pointed out the acute need for longer periods of sanatorium care and for provision of tuberculosis hospitals for the soldiers returning to their communities in active stages of the disease. England is also establishing educational centers and large farm colonies for her soldiers who have been discharged from sanatoria.

Under the new plan, before being returned to his home, the soldier should show (1) Absence of bacilli

from the sputum after repeated tests; (2) Normal temperature after vigorous exercise; (3) Absence of all signs of disease on chest examination, and (4) Absence of all tendency to hemoptysis.⁴

To meet the tuberculosis problem of war, each large community and each county should provide, either by public expenditure or private subscription, (1) Hospital accommodations for active and advanced cases; (2) Sanatoria for earlier and improving cases where the patient may stay until all activity of disease has ceased, whether it be a month or a year; (3) Dispensaries and visiting nurse service for after-care; (4) Farm colonies or carefully selected and carefully supervised employment. This will mean immediate activity on the part of existing tuberculosis organizations and health departments and the creation of active new tuberculosis organizations in practically every community and county in the United States.

8.—To prevent undue tuberculosis in the civil population in the United States, it will be necessary to co-ordinate the efforts of various governmental agencies. The prohibitive cost of food is already making itself felt in the tuberculosis problem of the United States. To meet the condition there must be: (1) Maximum production of food supplies; (2) Control of food prices; (3) Improved sanitary conditions for industrial workers including the prevention of overcrowding in manufacturing centers; (4) The development of out-of-door schools and arrangement for the supplementary feeding of the children of the poor; (5) Increased dispensary, sanatorium and visiting nurse service; (6) Provision for the segregation of advanced consumptives in industrial communities.

9.—The increase of tuberculosis among the families of soldiers, observed in European countries, is the natural result of war conditions with mental anguish, grief and anxiety; the prohibitive cost of food and the necessity for women engaging in gainful occupations. An added factor, of course, is the return of the actively tuberculous soldier spreading infection particularly among the children of his household.

The increase of tuberculosis among the families of soldiers in the United States could be limited by: (1) Liberal provision for the non-working wives of soldiers; (2) Liberal pay for the women who are employed; (3) The establishment of day nurseries for the children of working women; (4) Provision of comfortable and sanitary factory and working conditions; (5) The provision of nourishing and well prepared food in the nurseries, schools and factories; (6) Hospital and sanatorium care under compulsion for all tuberculous soldiers until they are no longer open cases. This last condition can be brought about by retaining tuberculous soldiers in military service and discharging none of them until the disease is arrested.

10.—The depletion of anti-tuberculosis forces through the enlistment of expert physicians and tuberculosis nurses for military service, was one of the serious mistakes in England at the beginning of the war.

To meet the war needs of the United States and to avoid the mistakes of European nations, state and local anti-tuberculosis organizations should not only maintain their integrity but should expand their forces. It would be the height of folly to draft tuberculosis experts and tuberculosis nurses for military service and later to find it necessary to meet the tuberculosis problem, with wholly incompetent and untrained physicians and nurses.

Summary of a Program.

Based upon the unfortunate experiences of European nations, the logical war program for the control of tuberculosis in the United States may be summarized as follows:

1.—Full appreciation of the importance of tuberculosis in war by the military authorities, tuberculosis organizations, health officials, civil officers and the people.

2.—The immediate development of anti-tuberculosis machinery with dispensaries, visiting nurses, hospitals, sanatoria and farm colonies in every large community and in every county.

3.—Improvement in methods of examining recruits at enlistment and of all soldiers including:

(a) Employment of experts for the examination of suspected cases.

(b) Re-examination of enlisted men in mobilization camps.

(c) Closer observation of enlisted men in the field for the earlier detection of evidences of tuberculosis.

(d) The adoption of a list of "suggestive signs" or "danger signals" of tuberculosis which will prompt army medical officers to refer soldiers for more complete examination.

4.—Closer scrutiny to detect tuberculous individuals who enlist and attempt to conceal their illness.

(a) Co-operation between recruiting officers and local authorities to secure previous tuberculosis histories.

(b) Thorough tuberculosis surveys of all communities by health officers or tuberculosis associations to obtain this information.

5.—The elimination, by every possible means, of tuberculous persons from among those who will be subjected to the strain of military service.

(a) Rigid examination of recruits.

(b) Re-examination in concentration camps.

(c) Periodical re-examination in service.

6.—Adoption of means of early diagnosis of tuberculosis and acceptance of the fact that the consumptive who becomes physically incapacitated or who has bacilli in the sputum is usually advanced and is often incurable.

7.—Immediate establishment of tuberculosis hospitals and sanatoria in every large community and county not adequately provided at the present time and the increase in capacity of all existing institutions.

(a) Establishment of tuberculosis hospitals in every county or group of counties for the care of active and advanced cases.

(b) Development of tuberculosis departments in all general hospitals. While probably not advisable under ordinary conditions, this will prove a satisfactory war time measure if under the supervision of physicians and nurses experienced in tuberculosis.

(c) Creation of sanatoria in all countries not having same.

(d) Increase in capacity of all existing sanatoria.

(e) Industrial or farm schools in connection with sanatoria.

(f) Farm colonies for those discharged from sanatoria.

(g) Development of dispensaries and nursing service, for after-care of patients in farm colonies and in their homes. There should be at least one dispensary with nursing service in every county or large community.

(h) Increased facilities of all existing dispensaries and nursing service.

(i) Introduction of instruction on tuberculosis in nurses' training schools.

8.—To control tuberculosis in the civil population it will be necessary to:

(a) Guarantee reasonable food supplies for all people, through federal control of prices or increased public and private charity.

(b) Supervision of living conditions and working conditions of industrial workers.

(c) The provision of out-of-door schools with supplementary feeding for school children in all communities.

(d) Dispensary and visiting nurse service available to the civil population.

(e) Medical supervision and physical examination to detect open tuberculous cases in industrial communities.

9.—The control of tuberculosis among the families of soldiers may be brought about by:

(a) Liberal provision by public or private charity for wives and children of soldiers.

(b) Liberal pay for women who are employed.

(c) Establishment of day nurseries for the children of working women.

(d) Supervision of factory and working conditions.

(e) Provision of nourishing food in nurseries, schools and factories if found necessary.

(f) Retention of tuberculous soldiers under military control until the case is no longer open.

10.—To intelligently meet the technical side of the tuberculosis war problem by:

(a) Withholding physicians and nurses engaged in active tuberculosis work from military service until an urgent need may arise.

(b) Enlisting the interest of county medical societies to induce one physician in every county or large community to perfect himself in the diagnosis and treatment of tuberculosis.

(c) The employment of a community nurse with tuberculosis experience in every county or large community.

(d) The special training of graduate nurses in tuberculosis work.

(e) The creation of classes of intelligent lay-women to supplement the service of graduate nurses in instructive and nursing work among the tuberculous.

(f) The encouragement of young physicians and medical students to affiliate themselves with established dispensaries to increase their efficiency in tuberculosis work.

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BIRTH CONTROL AND THAT SORT OF THING.*

REYNOLD WEBB WILCOX, M.D., D.C.L.
PRESIDENT OF THE AMERICAN COLLEGE OF PHYSICIANS.

New York.

For the individual who under the guise of philanthropy or social uplift seeks only personal advantage normal mankind has little respect. For the person who knowingly violates the organic law of the land for financial gain, the courts have opprobrious names and the judges inflict proper penalties. For the individual who posing as an exponent of civic or social betterment deliberately defies law and decency for the purpose of private gain and this defiance brings them before the bar of justice with resulting penalties, neither the plea of philanthropic purpose nor individual liberty is likely to avail. Their sympathizers crown such an individual as a martyr and a propaganda is started to repeal laws which to them are obnoxious and to substitute license to gratify evil passions without the operation of laws, which are merely expressions of crystallized custom, being invoked against them. These peculiar brains never realize that whether or not laws enacted by legislatures stand or are repealed, biologic and economic laws go on forever and in the end attempted interference with these comes to naught.

Birth control does not differ from other outward manifestations of inward undeveloped or perverted mental or emotional functionings. From a biological standpoint it is a necessary sequence to other propaganda which have been discarded. To the philosopher it is a source of amusement, to the moralist it is an object of pity, to the educated physician it is an exhibition of ignorance. Its creed sounds plausible enough: Fewer and better children. It is not a logical sequence that if there are fewer the children will of necessity be better because that depends, according to the eugenists, who procreates them or according to the euthenist, in what environment they are fated to be developed. Since the propagandist is incapable of entertaining two ideas in his head at the same time, apparently because two bodies cannot occupy the same space at the same time, the better child idea has been lost sight of and stress seems at present, at least, to be laid on fewer children.

*Read before the American Association of Medical Jurisprudence at its fifth annual meeting at New York City, May 25, 1917.

Ignoring, temporarily, the eugenists and euthenists, fewer children by no means results in better children, for Pearson pointed out in 1914 in his *Handicap of the First Born* the heavy incidence of syphilitic, neurotic, tuberculous and albino children among the first born. Birth control, then, if effective, will certainly increase the percentage of these classes by defective children. The only method whereby these unfortunate results may be obviated is that the first child shall not be born in order that the percentage of defectives among the limited number of successors to the non-existent first child may be so reduced that the children shall be better. This difficulty will doubtless be surmounted, theoretically at least, by the birth control advocates in a manner that will appear to them to be perfectly logical. Possibly they will then advocate sterilization for both sexes. If the gynecologists are correct in their statement that there are no cleanly and effectual methods (drugs) or means (appliances) whereby the results of attempts at procreation can be prevented then sterilization is an absolutely necessary dogma for the advocates of birth control to adopt for themselves and its practice by them will likely meet with popular approval.

Quite naturally physicians agree that a tuberculous individual should not marry or if after marriage, having become tuberculous, they should not procreate. We can well appreciate the interest which a physician, whose work is limited to practice among such patients, should have in birth control. Neither section 1142 nor 1145 prevents the physician from giving such advice as he deems proper under these circumstances. In other words he advises control, which may be self-, birth- or some other control. But his advice should be logical. If it is true that the population of the United States during the decade 1900-10 increased by 21 per cent., while the production of cereal grain increased by only 1.7 per cent. and that it would require sixty millions more meat animals in order that meat should have been as abundant *per capita* as it was in 1890, is it logical to propose that the results of excessive birth control in meat-producing animals will be obviated either in part or in the whole by the practice of birth control by humans?

The conclusion to be drawn from these facts, and the only logical one, would seem to be that the results of excessive birth control of meat-producing animals must be met by self-control of the appetite for meats as well as by self-control in the propagation of the human race. The latter has apparently not entered into the consciousness of the birth control advocates or else it seems to deprive them of what they call their constitutional right to life, liberty (or license) and the pursuit of happiness. The plea that section 1142 of Penal Code denies to woman "her absolute right to enjoyment of intercourse unless the act be so conducted that pregnancy be the result of the exercise. This clearly is an infringement upon her free exercise of conscience and pursuit of happiness" and therefore the section is unconstitutional. And further, I again quote from the counsel of one of the defendants in the two recent criminal causes as found in the opinion of Mr. Justice Kelby, the statute "makes mandatory upon married persons, or even single persons, having sexual intercourse, that which it is contended rests solely and entirely in their discretion and conscience, and compels them to exercise their conscience in a manner contrary to their personal desires, and this clearly interferes with their happiness." Mr. Justice Cropsey very properly observes that the contention that the section is

unconstitutional because it "interferes with the free exercise of conscience and the pursuit of happiness" could probably be made by some defendant against every penal statute and that, if each individual's conscience and desire for happiness were to determine whether a law is constitutional, none of them could be upheld, and citing the matter quoted above he very properly observed that the same statement could be made with equal force about the statute defining adultery, or a statute that might be enacted making fornication a crime, or any other definition of a crime.

Another interesting phase in birth control agitation is the proposal that instruction in contraception be legalized for physicians and trained nurses, on the ground that it is a professional matter and as claimed by one of the protagonists that a diagnosis must be made for each case (probably meaning patient) and the proper drug or appliance selected. But why trained nurses? They are of both sexes, to be sure, but no one who knows anything of their education or work for a moment imagines that they possess any medical knowledge or have had any opportunity to acquire it. Nursing is not a profession but a vocation. If nurses are allowed to impart this valuable (?) information why not chorus girls, stenographers, manicurists, sales ladies and particularly clandestine prostitutes; the last ought to be especially well informed upon this subject.

In other words, it is proposed to permit trained nurses to enter into one phase of what is admitted to be the practice of medicine, without education therein, and to break down one of the safeguards by which the health of the community is protected. And if exemption from the requirements of the medical practice laws is extended to one group of individuals who are without the medical profession it will be easy to extend this to other equally insistent groups who have the same reasons for desiring to impart instruction in the matter of birth control. Since it is undisputed that "by the exercise of the police power, the State may regulate the relative rights and duties of all persons within its jurisdiction so as to guard the public safety, protect the public morals, secure the public health, and promote the common good and welfare and this police power may be put forth in aid of what is sanctioned by usage or held by the prevailing morality or strong or preponderating opinion to be greatly and immediately necessary to the public welfare," and so long as there is no doubt but that this power is vested inherently in the legislature and is not derived from any constitutional provision, there is little likelihood that any plea of unconstitutionality can successfully avail against the present laws. Nor is it likely that any repeal of these particular laws will be seriously entertained by this or succeeding legislatures.

So much for birth control; that sort of thing of my title is common to all propaganda involving questions of social economics and should be presented under three categories: Class legislation is to be deprecated; therefore anything which apparently favors this is to be repealed or nullified. Because the upper classes produce fewer children it is assumed that they avail themselves of birth control methods and appliances which are denied to the lower classes who have more children. Therefore, these appliances should be furnished to the lower classes, who should be instructed in their employment.

The facts are: the upper classes, meaning those of the cultivated upper classes, through education acquire habits of thought tending toward a broader view of life and an appreciation of the higher relationships of

life so that enjoyment is found in the appreciation of the arts, of the sciences and of good literature and in the social amenities and in altruistic endeavor. The uneducated of the lower classes seek their pleasure in the gratification of various appetites connected with their physical existence. This difference explains some of the difference in birth percentage. Further than this, the birth rate among the lower classes will not be subject to birth control as some of its advocates will have it because the methods and means, as the gynecologists inform us, are not effective, and further the birth rate is determined by an economic law, namely, the productive value of the child, and varies in direct ratio to the latter. Obviously, if the school period is prolonged or child labor is limited or the cost of sustenance is increased, the productive value of the child is diminished and the birth rate falls. This has been an observed fact for generations.

Secondly: Any plan for the real benefit of humanity appeals to our sense of duty to our fellow man. If the persons engaged in such philanthropy are actuated by high motives and their only reward will be the consciousness of a duty performed they may be classed as altruists. But when an alleged scheme for racial improvement is predicated upon personal financial gain all argument for the furtherance of the project fails.

Mr. Justice Cropsey states in his opinion in the case above mentioned that "the evidence introduced showed that the defendant had sold an article to be used by women, which was designed to prevent conception. This was the basis of the information and resulting conviction. The article was not worth more than fifty cents, but was sold by the defendant for two dollars. In conjunction with the sale the defendant disseminated literature dealing with the question of conception and setting forth various ways and means by which it could be prevented.

"One of these pamphlets is labeled 'What Every Girl Should Know.' This contains matters which not only should not be known by every girl but perhaps should not be known by any. The distribution of these pamphlets, especially to girls just coming into womanhood, would be a shocking disgrace to the community.

"The defendant claims that her undertaking in furnishing this information and these appliances is prompted by a sole desire to benefit her sex. However that may be, the evidence shows there was a decidedly commercial aspect to the undertaking, for not only was the article sold at a great profit, but in addition a regular fee was charged to each visitor, and the visitors numbered a hundred or more a day."

If this is philanthropy it certainly is not altruistic but miserably sordid.

Lastly: The mental processes and aberrations of logic manifested by the propagandists of this particular species are exceedingly interesting to the psychologist. It has always seemed an intrusion upon the privacy of the poor and an infringement of their rights when the conditions under which they live and their manner of conducting their personal affairs have been made the subjects of surveys by so-called social workers. Their curiosity savors much of that of "slumming parties" more or less prevalent among a certain class. The greater number of the seemingly poor are respectable and most have a pride of life that should be respected. But I have no scruples against making a survey of any group of propagandists.

The precedent at times is set by the courts in the process *de inquirendo lunatico* against an individual who becomes fanatical. The psychology of the propagandist is interesting; the basic cause of his acquiring his abnormal propensities varies largely. He, or more often she, may be a moron or, if of near the average mentality, may suffer from mental strabismus, generally accentuated by intensive cultivation. Or owing to unfortunate environment or defective education a

narrow outlook upon the world has resulted and destructive tendencies are developed.

The experiences of life, the actualities of science, the established codes of morals, the relation of the individual to others and to the state, the duties and rights of the citizen, which have been proved to be of the greatest good to the greatest number, are to be destroyed or disputed because they interfere with the interests, habits or desires of one individual or a small group of individuals. This is the origin of all the anti-societies. These people are fundamentally anti-social; when they violate the law they are criminal; when their actions are out of harmony with their personality and environment they are insane.

The propagandist is essentially an egotist in that he sets up opinions and initiates movements that run counter to what experience has shown to be reasonable and useful. He is dangerous when his propaganda becomes a disease and he speaks of it as "my propaganda" which must command respect because it is his, in much the same manner as the vulgar rich man will speak of "my bowels," as if they were any different from other man's bowels because they happened to be owned by him.

But, like other diseases, recovery is possible, generally probable, if there are legal obstacles interposed or the financial returns are not remunerative. Recovery is permanent, however, only from that particular disease. It does not prevent the victim from acquiring other diseases, namely, other propaganda, in fact, several propagandas may afflict the same individual, even in rapid sequence and of varying severity.

At a recent assemblage of advocates of birth control opportunity was afforded for a survey such as has been made of followers of other propagandas. Twenty-five of the most vociferous were selected. Naturally the Binet-Simon tests could not be applied, nor was there any necessity, for their utterances left no doubt as to their mental development. Various stigmata of degeneration were noted, but although both Lavater and Lombroso are no longer accepted as absolute guides yet the student of their teachings does not approach an unfamiliar subject although experience may not confirm all of their conclusions. The results of this survey were somewhat disappointing in that it was found that the birth control propagandist is not of a pure type. No less than six of these were discovered to have been subjects of survey in an investigation of another propaganda of an entirely distinct species. Curiously enough three of these six had been determined to be sexually aberrant; two perverts and one an invert. In a very few, birth control represented one phase of a general revolt against social order (anarchist), in a larger number, the more generally distributed improvement in conditions of life (socialist), in the larger number the enjoyment of sexual activities without penalty (hedonist), but the majority apparently have taken up the propaganda as a means of livelihood (promoter).

The decisions of the courts would make it appear that engaging in this particular propaganda is a hazardous occupation in which accrued penalties are likely to destroy profits. The dissociated elements among the propagandists themselves will evidently prevent co-ordinated action, so that the disease is doubtless self-limited and will eventually disappear. It is probably not very contagious. The only contribution to science which this particular propaganda has furnished is the opportunity which it has afforded for an interesting psychological survey.

679 Madison Avenue.

ALUMINUM AND ITS RELATION TO CANCER.*

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Although cancer is admittedly on the increase and in Great Britain is said to be causing more deaths than pulmonary tuberculosis, its etiology is still unknown, and the results of surgical and other methods are notoriously unsatisfactory.

It is my purpose to endeavor to throw some light on the etiology of cancer, to show how in a measure it may be prevented, and under favorable conditions how its victims can be cured, and also how its recurrence after operative measures avoided.

In the first place I shall try to demonstrate the role of aluminum in the elemental salts of the vegetable kingdom.

Secondly, the relation of aluminum to animal life.

Thirdly, the action of aluminum as a therapeutic agent in the treatment of cancer.

Fourthly, I shall indicate those elemental substances which aggravate the disease and must be avoided in the therapeutic treatment of cancer.

Aluminum and Its Therapeutics.

Aluminum, combined with other elements, is one of the common constituents of the crust of the earth. In combination with hydrogen, oxygen and silica it forms our clays, slates, marl and loam. Without it there would be but little vegetable life, and, in consequence, still less animal life.

Many scientific analyses have been made and elaborate calculations published concerning the amount of plant foods present in the soil, and their availability for immediate use, and all authorities agree that though there is in even the poorest soils vast quantities of the necessary elemental salts for production of plant life, these salts are not immediately available. They are locked up, as it were, by their combination with aluminum in various proportions, and, until this lock is broken to some degree by cultivation and addition of fertilizers, the fertility of the soil is insufficient for large crops.

Formerly the salts of aluminum were much used in medicine, chiefly the common alum, a double sulphate of aluminum and an alkali, either potassium or ammonium. Alum coagulates albumen; is an astringent and haemostatic. Early provings from homeopathic sources were made from clay, an insoluble form, yet even they showed unmistakable therapeutic action. In the *Journal of Pharmacology and Experimental Therapeutics*, February, 1916, Roth and Vortlin state that aluminum lactate when administered to animals produces diarrhea and death, and that autopsies show congestion and corrosion of the stomach and a hemorrhagic condition and thickening of the intestinal mucosa.

Science has so far demonstrated the presence of sixteen elements in the human body, viz.: oxygen, carbon, hydrogen, nitrogen, calcium, phosphorus, potassium, sodium, sulphur, chlorin, manganese, ferrum, magnesium, iodin, fluorin and silicon. The atomic weights of these elements range from one to fifty-six, with the exception of iodin. The atomic weight of aluminum is twenty-seven, therefore about midway between hydrogen, one, and iron atomic weight about fifty-six.

During my researches into the chemical constituents of the human body, it became necessary to ascertain whether or not aluminum was a hitherto unknown con-

stituent. To determine this the most available plan at my disposal was to obtain a quantity of ashes from a cremated human body and have an analysis made by a competent chemist. This was done, and an affidavit is here enclosed to attest the purity of the ashes obtained. They were submitted to Dr. A. W. Balch, professor of chemistry at Tufts Medical School, who found a large trace of aluminum.

Later other ashes were obtained; one sample were those of a man who had died of cancer. They were taken from sealed cans and care was taken to prevent any contamination. Following the same method of analysis used by Dr. Balch aluminum was again found to be present.

The following affidavits support these assertions:

"This is to certify that I, C. B., gave to W. Bryant Guy, M. D., on May 10, 1916, a portion of ashes from cremation of a human body and I hereby testify that as far as I know, no foreign material was present in the said ashes, nor alum."

"Dr. W. Bryant Guy,
277 Warren St.,
Boston, Mass.

My dear Doctor:

I have made a chemical analysis of the material submitted by you and find it to contain a large trace of aluminum.

The method consists of rapid evaporation with nitro-hydrochloric acid, to destroy the trace of tarry matter which was present. The dry residue was dissolved with the aid of a little hydrochloric acid, sodium hydroxide added to complete precipitation and then in considerable excess. After filtration the clear fluid was made slightly acid with hydrochloric acid, and aluminum was precipitated with ammonium carbonate. The precipitated aluminum hydroxide was soluble in sodium hydroxide and acids and contained no phosphates. All chemicals used were free from aluminum salts.

A. W. Balch."

I have found aluminum beneficial as a therapeutic agent when given internally in various disorders as follows:

As a hemostatic its action is certain and rapid in hemorrhage of the uterus, as in child-birth, fibroids and cancer; in hemorrhage of bladder (one case of over a year's duration following dilatation of a stricture), also in bleeding hemorrhoids. Because of its powerful action on all mucous membranes it is especially valuable in nasal, aural and bronchial catarrhal disorders, also in cases of phthisis accompanied by fetid breath, in chronic diarrhea and constipation and in certain forms of gastric and intestinal conditions, upon which I shall touch later.

Externally aluminum is in common use. It destroys exuberant growths as in seborrhea, ringworm, psoriasis and is beneficial in acute and chronic eczema, granulating sores and wounds, and in the treatment of burns and similar injuries.

Aluminum as a (Possible) Bio-Chemical Element and Its Relation to Cancer.

Before considering this point it would be well to summarize what is really known or definitely accepted as probably true about this disease. I have taken these statistics and quotations from a book entitled "Cancer, Its Cause and Treatment," by L. Duncan Bulkley, M. D., of the New York Skin and Cancer Hospital, published in 1915, as being doubtless the best and latest authoritative presentation of the subject.

*Read at the meeting of the Boston Homeopathic Medical Society December 7, 1916.

Cancer is on the increase here and in Europe. From 1900 to 1915 it has increased 25 per cent. P. 47.

It is most prevalent in countries that are the richest and consume the greatest amount of animal food, also tea and coffee. P. 48.

It is most prevalent in the cities and less so in the country districts. P. 59.

Among the aborigines of other countries and the Indians of this country, it is almost unknown but after they adopt the habits and diet of civilized peoples they become increasingly subject to this disease. P. 48.

Dr. Packard states, "That while animals get plenty of mineral matter from plants and the earth, man gets but little, and while the herbivorous animals are rarely afflicted with cancer, civilized man is succumbing to it more and more."

He also states "that among savage tribes, who are practically free from cancer, the water in which vegetables are cooked, is also consumed as food, thus securing all the salts." P. 123.

Braithwaite has called attention to the occurrence of cancer among certain people who are vegetarians. P. 129.

Sir James Paget says, "I believe it to be constitutional, in the sense of having its origin and chief support in the blood by which the constitution of the whole body is maintained." P. 140.

Bristol, reviewing the many theories of the etiology of neoplasms, shows pretty clearly that all reproduction comes from outside the cell, etc., also that a fixed ratio between the salts of the blood, lymph and tissues is necessary for normal activity and reproduction of cells; further, that a disturbance in this ratio, and an upset in the chemical equilibrium will lead to an abnormal metabolism, growth and reproduction, and result in an atypical growth in the area involved. P. 142.

Ninety per cent. of those attacked with cancer ultimately die of the disease, and in 1914, there were, in the registration area of the United States (about two-thirds of the population) 50,000 recorded deaths from this disease. In New York City, from May to November, 1914, there were 2,173 deaths from cancer and malignant tumors. P. 144.

An effective remedy in the hands of Dr. Bulkley is to have his cancer patients eat the entire potato, skin and all, thus obtaining all the mineral salts. P. 156.

Bennatt and Sandwich show that of the few cases of cancer found in India most of them were caused by chewing Betel, a combination of areca nut, quicklime and betel leaf, and that calcium is one of the salts incriminated in the causation of cancer. P. 54.

Dr. Bulkley's conclusion is that "*deranged metabolism is the only remaining etiological element.*" P. 205.

I wish now briefly to parallel with these statements a few facts concerning aluminum.

1. That one of its functions is to hold in equilibrium the salts of the soil.

2. That the finding of aluminum in the ashes of cremated bodies by Dr. Balch and myself points to the fact, even if it does not prove it, that its presence in the chemical constituents of the body has a similar action by keeping its tissues in equilibrium, and preventing undue and abnormal growth.

3. That nitrogenous foods added to the soil, such as animal manures, containing salts of nitrogen, phosphorous potassium and lime tend to break down their equilibrium and thus allow of their use for vegetable growth.

4. That excess of nitrogenous foods and lime are also recognized to be important etiological factors in the causation of cancer.

5. That city dwellers are not exposed to dust containing aluminum salts, but that aborigines who live close to nature, and especially those who partake of water in which their vegetables are cooked, must necessarily imbibe an appreciable amount of aluminum.

6. That the therapeutic value in potato skins eaten by Dr. Bulkley's patients is probably due to a minute quantity of aluminum salts in or adhering to them.

7. That pari-passu with the disuse of alum in our food stuffs, due to the agitation induced by the pure food movement, and the introduction of other therapeutic methods, there is a corresponding increase in the number of cancer victims.

8. That administration of aluminum has an elective

action upon early cancerous growths, as I shall presently try to show.

9. That, strangely enough, those parts of the world in which the inhabitants use earth in their diet (see *The Literary Digest*, October 21, 1916, "Earth as Medicine and Food") are identical, according to the statistics collated by Dr. Bulkley, with those places where cancer seemingly is absent or almost unknown.

10. Admitting this much, we can safely say that the probable primary cause of cancer is the breaking down of the biochemical equilibrium of the tissues, *due to a deficiency of aluminum in said tissues*, and this probably takes place, as commonly accepted, in the embryonal rests or misplaced cells.

Treatment of Cancer.

To make a too definite claim as to the curative value of aluminum is at present unnecessary and unwise, yet a few cases may be in order as to the results obtained by administration of aluminum in cases of cancer both early and late. I have chosen a few unmistakable typical cases out of many in order to show its therapeutic value.

At the outset it was difficult to find a soluble form of aluminum, but finally two were found; viz., solution of aluminum acetate 8%, U. S. P., the other aluminum lactate. The administration of aluminum acetate solution internally, in doses of from 3 to 9 drops, has produced some very interesting results.

In one case of tumor of the left breast in a woman of 40 years, the aluminum acetate in about ten weeks caused entire disappearance of the growth. This tumor was probably malignant and had been pronounced so by three other physicians.

In another case of scirrhus cancer of the left breast in a woman 63 years of age, with puckering and recession of the nipple, the same treatment produced reduction of size from 4 to 2 inches in diameter, accompanied by distinct improvement in her general health and appearance, and freedom from former digestive disturbances.

Since then this patient has taken aluminum lactate and at this date, May 1, 1917, the growth has further diminished to a soft jelly-like substance about one inch in diameter, and although the puckering of breast and retraction of nipple is still present, I have every reason to expect an entire disappearance of the tumor.

Case of M. O., 50 years of age, two brothers died of cancer. First noticed jaundice Oct., 1916. Became weak, loss of appetite, was bothered with itching of skin and lost weight. Normal weight was 137 lbs. Saw him March 1st, weight 116 lbs. marked icterus, liver enlarged and a small tumor at left lobe of liver, faeces contained bile. Was at Boston City Hospital where he was advised to undergo an exploratory incision.

Dr. T. S. Chandler, surgeon, agreed with me that case was most probably one of cancer of liver. At this date jaundice is less and he has gained 10 lbs. since commencing treatment with a general improvement in health and strength.

In the case of Mrs. H., aged 64, shows conclusively the power of aluminum to break down cancerous tissue. Examination showed eczema of thighs, bronchitis, a poor heart action, and growths in right groin, anus, and in region of heart. This woman had had two previous operations for vaginal growths. The effect of the aluminum acetate solution was very interesting. There was at once a marked improvement in her general appearance and also in condition of the blood. The growth in groin became cystic and when opened, a large amount of serum was discharged. Later the growth in left lung broke down and I drew off nearly two quarts of serum from plural cavity. During my absence from the city for several days, fluid formed in the pericardium and caused death.

In nine cases of men, from 40 to 60 years of age, who had recurrent gastric and intestinal symptoms strongly suggestive of early malignant disease, complete relief was secured.

Summary.

Analysis of the facts relating to the role of aluminum and those relating to the statistics and histology of cancer present many points of comparison.

Aluminum in the soil of our planet appears to be the negative or fixing element holding the salts in a

more or less stable equilibrium, preventing undue waste and preserving the nutritive properties of the soil for benefit of future generations.

That also this equilibrium is partially broken by the action of lime, phosphorus, nitrogen and the alkaline salts as seen in use of fertilizers or manures used in the production of increased vegetable growth. Moreover, it is almost absolutely proven that excess of nitrogenous food is a strong factor in causation of malignant tumor, and that the presence of quicklime in the betel, chewed so extensively in some parts of the Orient, is an undoubted (prime) factor in the causation of cancer of tongue among its devotees.

Roth and Voeglin have showed that when aluminum is administered to animals a similar condition to cancer is set up in the digestive tract, thus proving its homeopathicity to malignant disease.

Further investigations should be made both into the constituents of animal tissues and also into the elemental constituents of our grains and other edibles in order to ascertain what foods (if any) contain aluminum, and these foods should be used to prevent the formation of cancer.

The finding of aluminum in ashes of human bodies is the connecting link between these two sets of facts, and strongly points to this conclusion, viz.: that just as the aluminum salts in the earth act as a conserving element, so in the tissues of our body, it prevents undue cell production, which all authorities agree is the basis of malignant tumor, this theory agreeing with the well known effect of its astringent and healing qualities, when applied to exuberant growths in various skin disorders.

During the past three months I have used aluminum lactate almost exclusively and find that my results are greatly improved. The dose is small and the absence of the acetic acid is very helpful in cases of cancer of the stomach and duodenum.

Aluminum being destructive of excessive cell growth, it necessarily follows that those elemental salts which stimulate cell production should not be administered to cancerous cases.

Among these elements that are incriminated are calcium, phosphorus, nitrogen and potassium, especially potassium iodide.

Too many cases are aggravated and made malignant by the use of the last named drug and when the diagnosis is in doubt a Wassermann test should be made.

It can be readily understood that where excessive cell growth is at fault, those remedies which stimulate cell production should be scrupulously avoided. A diet eliminating meat, fish and eggs should be insisted upon, at same time complete evacuation of lower bowel is most important.

From the results I have obtained by these measures, coupled with the administration of aluminum in proper dosage, I have not the least hesitation in declaring that cancer in an early stage can be cured, its recurrence after operation avoided, and still more important its non-appearance among our people assured.

Hemorrhage from the bowels, often diagnosed as simple ulceration and sometimes operated for hemorrhoids without relief, often yields to antisypilitic treatment.—LINTHICUM.

Spasmodic stenosis of the rectum, frequently described by writers as phantom stricture on account of its imaginary existence, is without doubt a temporary clinical entity.—KROUSE.

Gastric lavage may be used to differentiate between organic and functional disturbances; to remove stagnated food from the stomach.—(H. H. Redfield, *Med. Summary.*)

ISOTONIC HYPOCHLORITE SOLUTION.*

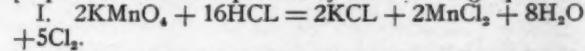
WILFRED G. FRALICK, M. D.

New York.

Preparation.

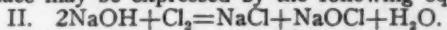
To be fit for surgical and therapeutic application a hypochlorite solution should be as free as possible from chlorates and from carbonates. Ordinary methods of manufacturing hypochlorous salts cannot be used for this purpose because they furnish more or less impure and insoluble salts and further because of their low available oxygen ($O Cl$) ions concentration.

This is especially true of the method of preparation of hypochlorite from chloride of lime and sodium carbonate, which is very low in available oxygen-ions ($O Cl$), in which besides insoluble residues, a number of soluble impurities are bound to form. The preparation of hypochlorites by electrolysis furnishes besides hypochlorite an important percentage of chlorate and is, therefore, not to be recommended. Preparation of hypochlorites from chlorine gas and solutions of alkali hydroxides furnishes only a fit product if absolutely pure chlorine is used. Action of hydrochloric acid upon pyrolusite gives besides chlorine considerable quantities of carbonates of calcium and magnesium and is unfit for the preparation of a pure solution of hypochlorite. The only method which I have found to furnish pure chlorine gas, which combining with caustic soda produces hypochlorite free of carbonate and sodium chlorate, insoluble salts or impurities, is the action of potassium permanganate and hydrochloric acid. The chemical processes that take place in this preparation can be expressed by the following equation:



As this is the only reaction that takes place and as it ceases only when it is complete, the quantity of chlorine can be determined exactly by weighing the permanganate to be used. (The ratio between permanganate and chlorine is constant, 10:11).

The chlorine passes through chlorine water and is introduced directly into a cooled aqueous solution of sodium hydroxide. An excess of alkali might be used to advantage if desired, because it increases the stability of the hypochlorites formed. The reaction taking place may be expressed by the following equation:



This reaction being quantitative, the ratio of hypochlorites formed to chlorine, and therefore to the permanganate (See equation I) is invariable. Theoretically 10 grams permanganate furnishes 11.9 grams sodium hypochlorite. In practical work a small variation from this ratio—which under given conditions is constant—is caused through the fact that not all chlorine is expelled from the apparatus used. It is important that the sodium hydroxide solution be kept cool because an elevation of temperature above 15° C. would cause the formation of chlorates. The best conditions for the experiment are the following:

10 grams of potassium permanganate are introduced into a fractionating flask with bored cork, through the hole is introduced a dropping funnel with 90 c. c. hydrochloric acid (specific gravity 1.19), while the glass tube is connected with a glass stoppered wash bottle partially filled with chlorine water; from the wash bottle the gas is directed into cold caustic soda solution preparation by dissolving 18 grams of NaOH in 200 c. c.

*A combined plating method for determining the actual killing power and phenol co-efficient of sodium hypochlorite.

of water. The experiment should be completed in 25 to 50 minutes. The hypochlorite solution is filled up to 1000 c. c. in a measuring flask.

First prepared at my laboratory. 1902-1903.

Testing the Isotonic Hypochlorite Solution.

Among the various tests for chlorine and hypochlorite the titration by n/10 sodium thiosulphate solution is by far the most accurate and convenient.* 5 c. c. of the 1000 c. c. hypochlorite solution obtained as described above were mixed with 10 drops concentrated sodium iodide solution and about 1 c. c. dilute hydrochloric acid. The liquid had a dark brown color which disappeared completely after the addition of 13.3 c. c. of n/10 sodium thiosulphate solution. The color reappeared after the addition of one drop hypochlorite solution. Our 5 c.c. contained therefore 13.3 times 3.545 milligrams of chlorin and the original 1000 c. c. from which they were taken contained $13.3 \times 3.545 \times 200 = 9.43$ gram Cl, or 9.90 grams sodium hypochlorite.

*Though this method of titration is by no means new to the chemist, it is here shortly given for the information of the physician:

N/10 thiosulphate solution contains 1/10 gram—equivalent, i. e. 15.810 grams of sodium thiosulphate in one litre. Every c.c. reacts with 1/10 gram equivalent of halogen. HCl acid is added to the solution and a quantity of NaI or KI had to be added sufficient to react with all the chlorine present, according to the equations:



Before the end point of the titration is reached the color of the iodin, which has been previously liberated by the addition of a few drops of concentrated sodium iodide solution to the hypochlorous liquid, has disappeared. The quantity of active chlorine contained in the original liquid can be calculated by multiplying the number of c.c. n/10 solution needed by 33.45, i. e., the atomic weight of chlorine. The quantity of sodium hypochlorite amounts to 105% of the weight of chlorine found.

Preparation of a Neutral Isotonic Hypochlorite Solution.

For many purposes it is desirable that the hypochlorite solution obtained through my method should be neutralized for use. This is done by careful addition of a few drops of hydrochloric acid until neutral litmus paper does not turn in color when introduced to the liquid. I have found that I could further stabilize this hypochlorite solution by adding a very small quantity of a potassium permanganate solution. This original method of preserving hypochlorite solution perfectly serves its purpose.

Commercial glass containers, heat, light and minerals or metals, except gold, silver and platinum, brought in contact with hypochlorite solutions act as reducing substances and tend to decompose them.

Bactericidal Action and Phenol Co-efficient.

The organisms studied as to their resistance to isotonic sodium hypochlorite solution were:

1. Streptococcus pyogenes.
2. Bacillus dysenteriae.
3. Bacillus typhoid.
4. M'spira colera.
5. Bacillus diphtheriae.
6. Bacillus coli-communis.
7. Bacillus suispestifer.

A modification of the Rideal-Walker method by the author was used.**

A heavy suspension (about 100,000 bacteria to each c. cm.) of the pure culture was treated with varying dilutions of the isotonic sodium hypochlorite solution and with variation of time of exposure. All the cultures tested were given the same treatment with pure carbolic acid.

Streptococcus Pyogenes.

Time of exposure—5 minutes.

Culture used—24 hours old, shaken with a few c.c.s of sterile water.

Proportion of the culture and disinfectant—0.2 c.c. + 10 c.c.

Dilution after exposure—0.1 c.c. to 99 c.c. of sterile water.

Dilution for counting plates—1/500 + 1/500 = 1/250,000.

Organic matter—None.

Subculture media—Standard agar. Reaction + 1.

Quantity in each petri dish—7 c.c.

Phenol	Colonies	Sodium Hypochlorite Solution.	Colonies
0.8%	1 c.c. 0	0.05% 1 c.c. 0	
"	0.5 c.c. 0	" 0.5 c.c. 0	
"	0.1 c.c. 0	" 0.1 c.c. 0	
0.6%	1 c.c. 2	0.02% 1 c.c. 2	
"	0.5 c.c. 1	" 0.5 c.c. 1	
"	0.1 c.c. 0	" 0.1 c.c. 2	
0.4%	1 c.c. 600	0.01% 1 c.c. 15	
"	0.5 c.c. 23	" 0.5 c.c. 0	
"	0.1 c.c. 23	" 0.1 c.c. 0	
		0.005% 1 c.c. 7	
		" 0.5 c.c. 4	
		" 0.1 c.c. 0	

Counting of the bacteria. 1 c.c. plate, 39 colonies; 0.5 c.c. plate, 4 colonies; 0.1 c.c. plate, 3 colonies. 46 colonies in 1.6 c.c.; 29 colonies on 1 c.c. of the dilution.

Dilution, 1/250,000.

Average number of bacteria in 1 c.c. of the original suspension, 7,250,000.

B. Dysenteriae.

Time of exposure—5 minutes.

Culture used—24 hours old, shaken with a few c.c. of sterile water.

Proportion of the culture and disinfectant—0.2 c.c. = 10 c.c. Dilution after exposure—0.3 c.c. to 99 c.c. of sterile water.

Dilution for the counting plates—1/100 × 1/100 = 1/10,000 and 1/100 × 1/100 × 1/100 = 1/500,000.

Organic matter—None.

Subculture media—Standard agar. Reaction + 1.

Quantity in each petri dish—7 c.c.

Phenol	Colonies	Sodium Hypochlorite Solution.	Colonies
0.8%	1 c.c. 0	0.1% 1 c.c. 0	
"	0.5 c.c. 0	" (1 contam)	
"	0.1 c.c. 0	" 0.5 c.c. 0	
0.6%	1 c.c. 0	" 0.1 c.c. 0	
"	0.5 c.c. 0	0.05% 1 c.c. 0	
"	0.1 c.c. 0	" (1 contam)	
0.4%	1 c.c. Many	" 0.5 c.c. 0	
"	0.5 c.c. "	" 0.1 c.c. 0	
"	0.1 c.c. "	0.02% 1 c.c. 0	
		" 0.5 c.c. 0	
		" 0.1 c.c. 0	
		" (1 contam)	

Counting of the bacteria. 1 c.c. plate, 12 colonies; 0.5 c.c. plate, 13 colonies; 0.1 c.c. plate, 14 colonies.

Dilution, 1/500,000.

Average number of bacteria in 1 c.c., 9,000,000.

B. Typhosus.

Time of exposure—5 minutes.

Culture used—24 hours old, shaken with a few c.c. of sterile water.

Proportion of the culture and disinfectant—0.2 c.c. + 10 c.c.

Dilution after exposure—1 c.c. to 99 c.c. of sterile water.

Dilution for the counting plates—1/200 × 1/200 = 1/40,000.

Organic matter—None.

Subculture media—Standard agar. Reaction + 1.

Quantity in each Petri dish—7 c.c.

Phenol	Colonies	Sodium Hypochlorite Solution.	Colonies
0.8%	1 c.c. 1	0.1% 1 c.c. 0	
"	0.5 c.c. 0	" 0.5 c.c. 0	
"	0.1 c.c. 1	" 0.1 c.c. 0	
0.6%	1 c.c. Contam.	0.05% 1 c.c. 3	
"	0.5 c.c. 27	" 0.5 c.c. 4	
"	0.1 c.c. 2	" 0.1 c.c. 0	
0.4%	1 c.c. Many	0.02% 1 c.c. 1	
"	0.5 c.c. "	" 0.5 c.c. 0	
"	0.1 c.c. "	0.01% 1 c.c. 121	
		" 0.5 c.c. 96	
		" 0.1 c.c. 25	

Counting of the bacteria.

Average number of the bacteria, 280,000,000 in 1 c.c.

B. Cholera.

Time of exposure—5 minutes.

Culture used—24 hours old, shaken with a few c.c.s of sterile water.

Proportion of the culture and disinfectant—0.2 c.c. + 10 c.c.

Dilution after exposure—1 c.c. to 99 c.c. of sterile water.

Dilution for counting plates—1/100 × 1/100 = 1/100,000.

Organic matter—None.

Subculture media—Standard agar + 3 c. c. of a 10% crystal

soda solution to each 100 c. c. of the agar.

Quantity in each Petri dish—7 c.c.

Phenol	Colonies	Sodium Hypochlorite Solution.	Colonies	Proportion of the culture and disinfectant—0.2 c.c. + 10 c.c. Dilution after exposure—0.3 c.c. to 99 c.c. of sterile water. Dilution for counting plates— $1/100 \times 1/100 \times 1/50 = 1/500,000$. Organic matter—None. Subculture media—Standard agar. Reaction + 1. Quantity in each Petri dish—7 c.c.
				Phenol
0.9%	1 c.c. 0	0.05% 1 c.c. 0		
"	0.5 c.c. 0	" 0.5 c.c. 0		
"	0.1 c.c. 0	" 0.1 c.c. 0		
0.7%	1 c.c. 0	0.02% 1 c.c. 0		
"	0.5 c.c. 0	" 0.5 c.c. 0		
"	0.1 c.c. 0	" 0.1 c.c. 0		
0.5%	1 c.c. 4	0.01% 1 c.c. 0		
"	0.5 c.c. 2	" 0.5 c.c. 0		
"	0.1 c.c. 0	" 0.1 c.c. 0		
		0.005% 1 c.c. 0		
		" 0.5 c.c. 2		
		" 0.1 c.c. 2		

Counting of the bacteria.

Dilution, 1/10,000.

Average number of bacteria in 1 c.c., 60,000,000.

B. Diphtheriae.

Time of exposure—5 minutes.

Culture used—24 hours old, shaken with a few c.cs of sterile water.

Proportion of the culture and disinfectant—0.2 c.c. + 10 c.c.
Dilution after exposure—0.3 c.c. to 99 c.c. of sterile water.Dilution for counting plates— $1/100 \times 1/100 = 10,000$ and
 $1/100 \times 1/100 \times 1/50 = 1/500,000$.

Organic matter—None.

Subculture media—Standard agar. Reaction + 1.

Quantity in each Petri dish—7 c.c.

Phenol	Colonies	Sodium Hypochlorite Solution.	Colonies
0.8%	1 c.c. 0	0.1% 1 c.c. 0	
"	0.5 c.c. 0	" 0.5 c.c. 0	
"	0.1 c.c. 0	" 0.1 c.c. 0	
0.6%	1 c.c. 0	0.05% 1 c.c. 1	
"	0.5 c.c. 0	" 0.5 c.c. 1	
"	0.1 c.c. 0	" 0.1 c.c. 0	
0.4%	1 c.c. 2	0.02% 1 c.c. 1	
"	0.5 c.c. 22	" 0.5 c.c. 0	
"	0.1 c.c. 14	0.01% 1 c.c. 1	
		" 0.5 c.c. 1	
		" 0.1 c.c. 0	

Counting of the bacteria.

Dilution, 1/10,000

Average number of bacteria in 1 c.c., 24,500,000.

B. Coli.

Time of exposure—5 minutes.

Culture used—24 hours old, shaken with a few c.cs of sterile water.

Phenol	Colonies	Sodium Hypochlorite Solution.	Colonies
1. %	1 c.c. 6	0.03% 1 c.c. 0	
"	0.5 c.c. 0	" 0.5 c.c. 0	
"	0.1 c.c. 0	" 0.1 c.c. 0	
0.8%	1 c.c. Many	0.01% 1 c.c. 0	
"	0.5 c.c. Many	" 0.5 c.c. 0	
"	0.1 c.c. 7	" 0.1 c.c. 0	
0.6%	1 c.c. Many	0.005% 1 c.c. 0	
"	0.5 c.c. Many	" 0.5 c.c. 0	
"	0.1 c.c. Many	" 0.1 c.c. 0	

Counting of the bacteria. 0.1 c.c. plates, 135 colonies; 135 colonies in 1 c.c. of the dilution.

Dilution, 1/500,000.

Average number of the bacteria in 1 c.c. of the original suspension, 675,000,000.

B. Suipestifer.

Time of exposure—5 minutes.

Culture used—24 hours old, shaken with a few c.cs of sterile water.

Proportion of the culture and disinfectant—0.2 c.c. + 10 c.c.

Dilution after exposure—1 c.c. to 99 c.c. of sterile water.

Dilution of the counting plates— $1/100 \times 1/50 \times 1/50 = 1/250,000$.

Organic matter—None.

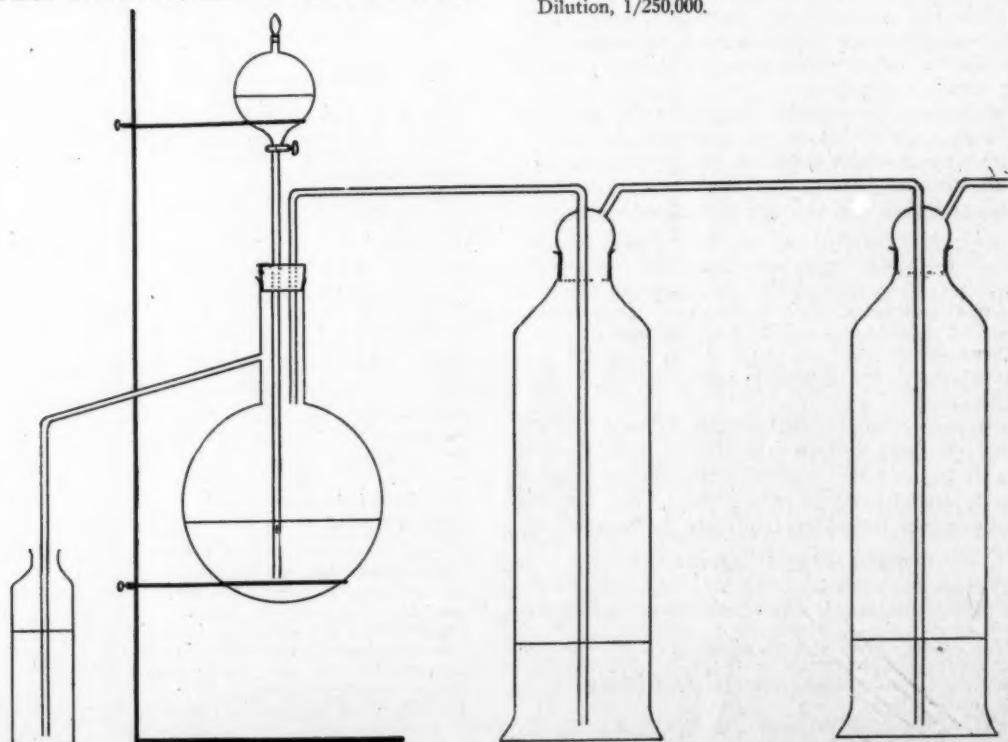
Subculture media—Standard agar. Reaction + 1.

Quantity in each Petri dish—7 c.c.

Phenol	Colonies	Sodium Hypochlorite Solution.	Colonies
0.9%	1 c.c. 0	0.1% 1 c.c. 0	
"	0.5 c.c. 0	" 0.5 c.c. 0	
"	0.1 c.c. 0	" 0.1 c.c. 0	
0.6%	1 c.c. 0	0.05% 1 c.c. 1	
"	0.5 c.c. 0	" 0.5 c.c. 1	
"	0.1 c.c. 0	" 0.1 c.c. 0	
0.4%	1 c.c. 2	0.02% 1 c.c. 1	
"	0.5 c.c. 22	" 0.5 c.c. 0	
"	0.1 c.c. 14	0.01% 1 c.c. 1	
		" 0.5 c.c. 1	
		" 0.1 c.c. 0	
0.5%	1 c.c. 100	0.01% 1 c.c. 18	
"	0.5 c.c. 46	" 0.5 c.c. 5	
"	0.1 c.c. 10	" 0.1 c.c. 1	
		0.005% 1 c.c. 132	
		" 0.5 c.c. 20	

Counting of the bacteria.

Dilution, 1/250,000.



Average number of bacteria in 1 c.c., 822,000,000.

The following table will show from one series of tests the comparative bactericidal powers of the isotonic sodium hypochlorite solution and phenol.

	Sodium Hypochlorite	Phenol.
	Solution (Carbolic Acid)	
Streptococcus pyogenes	1:2000	1:40
B. Dysenteria	1:2500	1:50
B. Diphtheriae	1:2700	1:60
B. Typhoid	1:2000	1:45
B. Coli-communis	1:3500	1:90
B. Suipestifer	1:2500	1:60
Micro spira cholera	1:2500	1:70

Time of exposure—5 minutes.

The extraordinarily high phenol co-efficient ranging between 60-120 by many series of tests puts this hypochlorite solution in a class by itself as a bactericide. Coupled with its non toxicity the phenol co-efficient bids fair to make isotonic sodium hypochlorite solution the antiseptic par excellence of the future.

In the *Chi. Med. Recorder* C. M. Dargan makes an eloquent plea to the young doctor not to forget the laboratory in diagnosis. While he is about it, he might also not forget the patient.

The Boston Chamber of Commerce says the loss due to colds, exclusive of cost of medical treatment, amounts to \$21.00 per year for each person.

TUMORS OF THE AREOLA AND NIPPLE OF THE BREAST.*

Report of Cases.

ROYALE H. FOWLER, M. D., F. A. C. S.

Brooklyn, N. Y.

L. M., age 22, Hungarian, was admitted to the Greenpoint Hospital December 2, 1916, with a tumor of the breast of some years duration. History incomplete as patient spoke no English. Springing from the nipple of the left breast was a dark greenish pedunculated mass the size of a lemon. It is well shown in the accompanying photograph. The surface was dry and lobulated. It emitted an offensive gangrenous odor. The pedicle was ulcerated, somewhat grooved near the nipple giving the appearance of having been constricted by a string. There was a very definite demarkation between strangulated mass and healthy nipple. There were no masses in the breast and no axillary glandular swelling. The growth was removed with the thermo cautery.

Pathological report. The tumor is roughly ovoid 4x2 inches. The surface is dry, blackened, and lobulated. It is rather hard in consistency. Microscopically it shows areas of necrosis, fibrous tissue. The epidermis shows a papillomatous formation.

April 25, 1917. The patient presents a normal, healthy breast and nipple.

Comments.

In this case we note a rare and interesting tumor. Deaver has collected 33 instances of such pedunculated growths arising from the nipple and areola. They may occur at any time of life and commence as a small wart which becomes finely or coarsely nodular. In attaining large size they may resemble a cauliflower. The pedicle is usually slender and may contain milk ducts. (Klebs) The orifice of a milk duct may appear on the surface. (Eberhardt).

The microscopic structure of these growths has been studied in but few cases. Cornil appears to have supported Salzac in the belief that these tumors are papillomas. A study of the illustrations in Salzac's thesis, "Papillomes cutanée du mamelon" would appear to represent a fibroma with thickened epidermis. According to the old pathology they were variously designated as fibro-cellular, fibrovascular, ericite tumor of the nipple, hypertrophy of Mont-



Pedunculated Tumor of the Nipple.

gomery's glands. Cavernous angiomas have been described by Jamain, Terrier, and Sendler. These tumors rarely occasion pain except when large from traction. They run a clinically benign course.

In this report may be properly mentioned a case of cyst of the areola which the writer has recently seen. It was located in the left breast at the outer margin of the areola, about the size of the thumb nail. Upon removal it contained characteristic sebaceous material. These cysts have been very rarely reported. There are but four cases on record published by Bryant.

Those especially interested in this subject will find an extensive bibliography in Deaver's monographic study of "The Breast, Diseases, Anomalies and Treatment."

280 Jefferson Ave.

Treatment of Epithelioma by Radium.

Russell H. Boggs emphasizes the fact in the *International Clinics* that in each case the proper form of radiation and dosage for each case must be carefully determined.

Four classes of Epithelioma are to be considered:

1. The lesion which can be cured by one application of radium with the proper dosage.

2. The lesion which is so situated that glandular involvement is likely to take place or has already occurred and the roentgen ray should be employed as an adjunct to treat adjacent glands.

3. Those cases in which the local application of radium supplemented by the roentgen ray will only act as a palliative measure.

4. Those cases in which excision is justified to be followed by radio-therapy.

Boggs believes that radium and the x-ray should always be considered first in the treatment of epithelioma, because, when properly applied, practically all epitheliomatous tissue can be made to disappear and there are fewer recurrences than by any other method. In order to apply the method, however, the operator must have the requisite clinical experience with these growths as well as a knowledge of the use of the agents employed.

Inoperable cases in which the tonsil is involved are often markedly improved so far as symptoms are considered.

* From the Department of Surgery, Greenpoint Hospital.

THE DETERMINATION OF SEX.

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The problem of the determination of sex has engaged the attention of savage and civilized man for centuries and certain scientists and pseudo-scientists have secured wealth and temporary fame by claiming to be able to predetermine sex. Since there are but two sexes, any theory is bound to be right one-half of the time, so that every new theory has plenty of statistical evidence.

One of the products of the present war has been the reappearance of numerous theories of the determination of sex by the physical condition of the returned soldier and comparative data on the optimum day after the first day of menstruation for the production of offspring.

The theories of sex determination have been considered by Dr. F. H. A. Marshall in his "Physiology of Reproduction" under three heads: (1) Those in which it is assumed that the sex is determined after fertilization and during embryonic life; (2) Those in which it is assumed that sex is established at the moment of fertilization or prior to fertilization; and (3) those in which it is asserted that sex may be established at different periods of development in different animals.

Sex Determination After Fertilization.

Born and Yung, working independently, showed that in tadpoles they could produce an excess of females by feeding them on a meat or fish diet. Similar experiments carried on by Cuenot showed an excess of males among tadpoles fed upon animal food and an equality among those which received a vegetable diet. Miss H. D. King has shown that neither food nor temperature are important factors in sex determination in the frog.

Rolph concluded from some experiments with wasps that the more abundant the food the greater the number of females.

Sex Determination at the Time of Fertilization or Before.

Thury and later Russell and most recently Raymond Pearl have produced considerable evidence to show that in cattle, matings which take place at the beginning of heat produce a preponderance of females, while those which take place late in the period of heat tend to produce a preponderance of males.

Riddle reported in 1912 that Dr. C. O. Whitman had been able to control the sex and color of pigeons. He used light and dark colored birds as respective parents and removed eggs to other birds as fast as laid thus forcing the maximum egg production. All of the first several pairs of eggs produced dark male hybrids. All of the last several pairs of eggs produced light female hybrids. In between is a period in which he was unable to predict the result of any crossing.

Pryll has recently reviewed the literature on the optimum day for conception. He cites some of the records of Zöller who found that eighty-three per cent. of conceptions occurred in the first eighteen days after the beginning of menstruation. Issmer and other authorities agreed on the tenth day as most likely to produce conception. The present war has afforded an opportunity for a number of studies in connection with the furloughs of soldiers. Siegel showed that boys are more numerous than girls during the period just after the beginning of menstruation. Siegel plotted a curve which showed the optimum time to be the first post-menstruation week. He also showed that boys were

much more numerous than girls during the first nine days after the beginning of menstruation. Pryll showed, however, that the optimum day was the eighth after the first day of menstruation. He also showed that there is no optimum for sex and that through the whole cycle more boys were born.

It must also be noted that in the Jews, where the woman is "unclean" for a portion of each month just following menstruation, the sexes are about evenly distributed.

Nutrition.

Schenck considered eggs to be either "ripe" or "unripe" at fertilization. The ripe eggs he supposed to develop into males and the unripe ones into females. As the presence of sugar in the urine is evidence of incomplete metabolism, Schenck concluded that by feeding women on highly nitrogenous foods and inducing complete metabolism he could ripen the ova and produce a greater number of males in proportion to females. (Of course, he succeeded part of the time.)

D. D. Whitney has recently shown that in a worm-like animal, the rotifer, it is possible to produce a large proportion of males by feeding the mother a green unicellular organism, while if she is fed a certain colorless form, the offspring are practically all females.

Internal Secretions.

Robinson concludes that the adrenals determine the sex of the offspring, maintaining that an excess of adrenalin produces males and a smaller amount causes the development of females. He bases his conclusions on fifty clinical cases. Experiments on rabbits do not prove his theory, however.

Sexually Differentiated Spermatozoa.

When the egg is fertilized by the sperm, there is a union of the stainable nuclear granules which are called chromosomes. In many insects and in some mammals including man, there is absolute proof that one-half the sperms have one less chromosome than the egg. It is supposed that if an egg unites with a sperm which contains the smaller number of chromosomes, the offspring will be male; if the chromosomes are equal in number in the egg and sperm the offspring will be female.

Position of the Testis and the Ovary.

Aristotle is responsible for a theory which has been periodically rediscovered, and which is still believed by some. This theory is based on the alternate functioning of the ovaries and on evidence from pregnancies after one ovary has been removed. It presumes that the right ovary produces eggs which develop into males and the left ovary produces eggs which develop into females. Considerable statistical evidence has been gathered in support of the theory by E. Rumley Dawson, but experimental evidence shows that eggs from either ovary fertilized by sperms from either testis develop into about equal proportions of males and females.

Sex Determination at Different Periods of Development in Different Animals.

Age of the Parent.

Hofacker in 1828 and Sadler in 1830 independently showed that when the father is older, more male births occur, and when the mother is older, there are more females. This evidence has been completely disproven by statistics and by experiments on lower mammals.

Parental Vigor.

Horse breeders believe that the more vigorous sires produce females, while sires less vigorous than the mares will produce males. It has been claimed by some

that soldiers returning from wars weakened by labor and exposure produce males to take their places in the nation. Statistics prove either side.

Conclusions.

The best evidence which can be adduced shows that in man there is no means of predetermining sex. We know that certain spermatozoa are male producers and that certain others are female producers, but there is no means of controlling such spermatozoa in the process of fertilization.

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AUTOSERUM TREATMENT OF CHOREA.*

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New York.

Dr. A. L. Goodman has reported on a number of additional cases of chorea treated by the method suggested by him some time ago and I take great pleasure in adding my little quota of cases. I present below a brief history of each of the three cases treated and will only add that the technique in each case was as follows:

Blood (about 30-40 c.c.) was withdrawn by venupuncture under aseptic precautions into large size centrifuge tubes (60-75 c.c.). The blood was allowed to clot in the ice box for several hours, then centrifuged at a speed of 3,000 revolutions per minute for one hour, and the serum then pipetted off into another sterile graduated container. The serum was then heated in this container in a water-bath for 1 hour at 56° Centigrade, and brought up with sterile 0.85 per cent. NaCl to 40 per cent. dilution. Lumbar puncture was done in the usual manner, spinal fluid withdrawn until it merely trickled out, generally about 25 to 30 c.c., and an amount of diluted serum slightly less than the amount of fluid withdrawn was permitted to enter the canal under its own gravity without force.

The patient was kept flat on his back and as quiet as possible after the injection. No other medication was given for several days previous to the serum treatment.

CASE 1. GIRL 16 YEARS OLD.

Negative family history. Personal history: measles in infancy, rheumatism 6 months ago. Menstrual history normal, began 2 years ago.

First attack of chorea at age of 6 years. Six more attacks since, each lasting about 2 to 3 months. Last attack synchronous with attack of rheumatism mentioned above. Present attack began 2 months ago. The choreiform movements are constant.

Physical examination negative; no heart murmurs. Six days after admission to hospital there was some slight improvement lasting about a week followed by relapse. Five weeks after admission there being no improvement in condition, 35 c.c. of blood withdrawn and 14 c.c. serum (made up with 0.85 per cent. NaCl to 40 per cent. dilution) injected into spinal canal. Slight convulsion after attack, anxious facies, headache. All these symptoms disappeared gradually within two days and there was gradual and marked improvement in the general condition.

The pulse varied between 100 on day of admission to 64 on day of discharge.

Temperature varied between 100 on day of admission to 98 on day of discharge.

Respiration varied between 22 on day of admission to 18 on day of discharge.

Blood cultures negative. Spinal fluid negative. Patient discharged, free from choreiform movements three weeks after serum treatment.

CASE 2. BOY 13 YEARS OF AGE.

Previous history: measles at age of 6 years; tonsillitis at age of 11, lasting two weeks; followed a few months later by attack of rheumatism, confining him to bed for six weeks. Present history: Two weeks previous to admission, while undergoing physical examination in school was found to be unable to hold book in right hand and also showed tremor to such an extent that his parents were notified and he was taken out of school; marked nervousness developed and tremor increased.

Physical examination shows a boy exhibiting no defects except for an error in accommodation, corrected by glasses. His tremor is marked and constant. Is unable to keep himself quiet while in bed. Everything else is negative.

Eighteen days after admission, showing no improvement, 14 c.c. of serum in 40 per cent. dilution were introduced intraspinally. This was followed by marked headaches lasting for four days. Then gradual improvement of headache and of choreiform movements, ceasing completely ten days after injection. Discharged a week later. Has been seen at intervals since; is going to school and has had no return of attacks.

Temperature, 100 to 89. Pulse, 96 to 68. Respiration, 24 to 18. Spinal fluid, blood and urine negative.

CASE 3. GIRL 9 YEARS OLD.

Mother had chorea at age of 12 years. Previous history: diphtheria at 4 years; measles at 6 years, followed by pertussis. Present history: Began three weeks previous to admission with disturbance in speech followed within ten days by entire loss of speech. At the same time twitching of body began to be noticed and within two weeks from first symptom patient lost all power to perform voluntary movements. There was obstinate constipation, bowels moving only once or twice a week. Very little urine voided. Physical examination negative except as to choreiform movements, which are constant. Knee-jerks increased. One month after admission 14 c.c. of serum (in 40 per cent. dilution) introduced. There was a marked reaction lasting two days.

Four days after treatment patient utters the following words: Mama, papa, doctor and finally was able to give her name as well as number and name of street she lives in.

Twenty-four hours later there was marked decrease in twitching and four days later she executed a few voluntary movements. Within two more days all choreiform movements ceased and patient was able to perform all voluntary movements and was able to assist in waiting on some of the patients. Discharged twenty days later and seen a month after that, when she was still in perfect health, as far as one could judge.

Temperature practically normal except during 24 hours after injection, when there was a rise to 102 F. Pulse between 120 and 72. Blood, urine and spinal fluid, negative.

Discussion: Much comment has been made in many of these cases of serum treatment (Swift-Ellis; Goodman) as to the probable rationale, etc. I have no definite data to advance, but would suggest the following theory as a possible factor. The exchange of substances from the sub-arachnoid spaces to the blood can

be brought about with greater ease than in the opposite direction, particularly with an increased intra-spinal pressure. Assuming chorea to be an infection localized in the cord, a theory often advanced by many observers, we can imagine the possibility of the antigen finding its way into the circulation and thus stimulating the production of antibodies, which cannot find their way back into the spinal fluid and cord by reason of the lower pressure in the circulation and the obstacle offered by the choroid plexus. By introducing the serum of the patient, presumably rich in antibodies, direct into the spinal space, we have, analogous to the rationale advanced by Flexner in relation to epidemic cerebro-spinal meningitis, the means at hand to combat this infection, which from its mode of onset and general progress appears to be of the sub-acute or even chronic variety.

Conclusions: 1. In each of the above cases there was a marked reaction, lasting about 48 hours. This may or may not have been due to faulty technique. 2. In each case there was apparently complete recovery. 3. The serum treatment of chorea seems to offer a valuable addition to the therapeutics of chorea and is well worth further investigation. Finally I desire to express my appreciation to Dr. J. J. McGowan, through whose courtesy I was permitted to report these cases.

316 W. 84th Street.

The Relation of Jaw Development in Children to Nasal Obstruction.

HAROLD HAYS, M.D., F.A.C.S.

ASSISTANT SURGEON IN OTOLOGY, NEW YORK EYE AND EAR INFIRMARY : CLINICAL INSTRUCTOR IN OTO-LARYNGOLOGY, COLLEGE OF PHYSICIANS AND SURGEONS,

New York.

It is a common mistake that adenoids and perhaps tonsils are responsible for all forms of nasal obstruction in children. There is no fallacious opinion, evidenced by the fact that many children still remain mouth-breathers after the tonsils and adenoids are removed, even after the nasal membranes themselves are properly treated and shrunken.

It has remained for the orthodontist to prove to us that improper jaw development (particularly the upper jaw) is responsible for as much nasal obstruction as tonsils and adenoids. When the combination exists, the child is doomed to become a permanent mouth-breather unless the jaw anomaly is corrected.

The high-arched palate is caused by a number of conditions, among which is thumb-sucking in babyhood. The infant constantly presses upon the upper arch or against the free edge of the gum. Although the first teeth may come in properly, the second teeth are crowded. The effect on the nose is marked. The nasal septum has a number of germinal centers and the septum must grow regardless of the restrictions placed upon it. If the upper maxillary arch is bent upward and narrowed, the septum will naturally bend to one side or the other causing nasal obstruction.

It is remarkable to note the beneficial effects on nasal breathing soon after the upper dental arch is expanded. This is most easily done during the early years of the second dentition when the groove between the two components of the maxilla has not firmly knit. I call to mind a number of children who, having suffered from nasal obstruction for years, even after the tonsils and adenoids have been thoroughly removed, have had proper nasal breathing brought about by expansion of the upper arch.

When examining children who are suffering from nasal obstruction, I make a point of noting the height and width of the hard palate, particularly if the nostrils are narrow and have a tendency to collapse. If tonsils and adenoids are partially responsible for the trouble I insist upon their removal. But frequently I am assured that proper nasal breathing will not be restored by this operation and so I insist that the parent promise me that soon after the operation they consult an orthodontist. A number of years ago, I removed the tonsils and adenoids from a small, anemic child who had a high-arched palate. Although I insisted on the parents consulting an orthodontist, they waited two years before doing so. The operation did absolutely no good. As soon as the arch began to expand, proper nasal breathing was restored.

The orthodontist does wonders in older children too. Recently I saw a boy of seventeen who had never breathed through his nose, although the turbinates were normal and the septum straight. The teeth were braced and the jaws separated with jack-screws. Within one month the two maxillae began to separate and within a short time an expansion of over half an inch had taken place. The boy now breathes through his nose, without a nasal operation.

11 West 81st Street.

The Call of Duty.

Sacrifice has always been one of the cardinal virtues of the medical practitioner. From the earliest days the physician has been pointed out as the one man in the community ready to respond to the call of duty at once. Despite weather, distance or time of night he hastens when summoned and renders aid, even if he knows that his only recompense will be a shining mark in the book in which St. Peter records good deeds.

Today, as never before, the medical man has an opportunity of demonstrating to the world his devotion to his profession. The country is calling him to don khaki and go to the aid of a soldiery, which, before long, will be shedding blood and sacrificing life upon the battle scarred fields of Europe.

Several thousand men have heard the call and heeded it. Many are already on duty, some in France and England and many more in the training camps and recruiting stations at home. The remainder are awaiting orders. Thousands are needed where hundreds have responded and we know the call will not be in vain.

It takes courage for a doctor who is collecting \$10,000 a year to go into the country's service for \$2,000, but thousands have cheerfully sacrificed very large incomes, hospital appointments and fine opportunities for advancement to serve their country. Crile, Brewer, Hugh Young, Cabot and dozens of others of the leaders in the profession are already hard at work in France.

Their example should be an inspiration. If the \$100,000 men can lay down their civil burdens and take up military duties at an enormous sacrifice, how much easier it should be for those of us whose incomes are smaller to go into the army and navy.

The kidneys, and the urinary tract generally, offer endless opportunities for manifestations of the highly strung nervous system. The polyuria of mental anticipation, the incontinence of fear, the precipitancy of anxiety, are all everyday instances of disturbed nerve control.

In recto-vaginal perforations and tears, better results are obtained when closure of the vaginal opening precedes approximation of the rectal edges of the rent.—GANT.

**PERSONAL HISTORY OF APPLICANT FOR APPOINTMENT IN
THE MEDICAL RESERVE CORPS, UNITED STATES ARMY.**

Give your name *in full* (including your full middle name):

The date of your birth: The place of your birth:

When and where were you naturalized (if of alien birth)?

Are you married or single? Have you any children; if so, how many?

What is your height in inches? Your weight, in pounds?

Give the nature and dates of all serious sicknesses and injuries which you have suffered:

Do you labor under any mental or physical infirmity which could interfere with the efficient discharge by you of the duties of a medical officer?

If either parent, or brother, or sister has died, state cause and age in each case:

Do you use intoxicating liquors or narcotics; if so, to what extent?

Have you found your health or habits to interfere with your success in civil life?

What academy, high school, college, or university have you attended? State periods of attendance from year to year, and whether you were graduated, giving date or dates of graduation:

Name any other educational advantage you have had, such as private tuition, foreign travel, etc.:

Give all literary or scientific degrees you have taken, if any, names of institutions granting them, and dates:

With what ancient or modern languages or branches of science are you acquainted?

When did you begin the study of medicine, and under whose direction? His residence?

How many courses of lectures have you attended? Names of colleges and dates:

When and where were you graduated in medicine?

(Fill this out and send it to the Surgeon General, U. S. Army, Washington, D. C.)

Have you been before a State Examining Board? If so, state when, where, and with what result:

Have you had service in a hospital? If so, state where and in what capacity, giving inclusive dates of each kind of service:

What clinical experience have you had in dispensary or private practice?

Have you paid particular attention to any specialty in medicine; if so, what branch?

What opportunities for instruction or practice in operative surgery have you had?

Have you previously been an applicant for entry into the United States service? If so, state when, where, and with what result:

Are you a member of the organized militia? If so, state with what organization and in what capacity?

Have you been in the military or naval service of the United States? If so, give inclusive dates of service with each organization, designating it:

In case of war or threatened war, will you accept active service for duty with the Army, should your services be needed?

What occupation, if any, have you followed other than that of student or practitioner?

Present or temporary address:†

Permanent residence:†

I CERTIFY that to the best of my knowledge and belief the above statements are true.

Signature

Date, , 191

Subscribed and sworn to before me, this day of A. D. 191

[SEAL]

[Signature and official title.]

†The candidate should give his present address for correspondence, and also his permanent address to which he desires commission sent should he be appointed.

....., M. D.

OF

....., 191

FURNISHES PERSONAL HISTORY

IN CONNECTION WITH

APPLICATION FOR APPOINTMENT

IN THE

MEDICAL RESERVE CORPS,
U. S. ARMY

Inclination

The Medical Times

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NEW YORK, JULY, 1917.

The Physician and His Duty.

Doctor, what are YOU going to do for the country at this time? Are you going to take your proper place in the Government Service, or is it your intention to "let George do it?"

The country needs medical men and that means that it needs YOU. Whether you are practicing in Maine or California, in a metropolitan city or a country village, your duty is the same. The army and navy must have medical officers and those officers must come from the ranks of the civilian practitioners.

Surgeon General Gorgas says the new army needs 25,000 medical men. In the present Reserve Corps there were commissioned, up to June 12th, 4,460 men, of whom 3,325 were first lieutenants, 902 captains and 233 majors. Not all of these gentlemen have accepted their commissions, so that, as matters stand at the present time, there are less than 5,500 medical men, including the regular officers, militia officers, and the reserves, out of the 25,000 for which General Gorgas has asked.

Will the physicians of this country stand by supinely and permit its military forces to suffer on account of lack of medical attention?

Is the medical profession, which has throughout its long and honorable history been known as a profession of sacrifice, to forget its ideals?

Unless our ranks have been serried by the inroads of commercialism, we believe the doctors of the country will rally to the colors, and will give the world an unparalleled example of heroism.

England has just been compelled to conscript physicians. All medical men under 41 have been ordered to duty and those who have declined to accept commissions have been made privates in the Royal Army Medical

Corps and will be used as stretcher bearers and orderlies. We hope the day will never come when the United States Government is forced to the extreme point of compelling American physicians to serve their country.

We are in this war and whether or not we favored it in the first place is inconsequential. We have put our hands to the plow and we cannot turn back. The Government must and will have sufficient medical officers and we are praying that the medical men will come forward voluntarily. Medical officers go into the army as first lieutenants with a salary of \$2,000 a year. While this is far less than the civil income of many volunteer medical men who are now in the army, we all have to realize that this is not a war for gain and that every man who enters into it must expect to sacrifice both time and money.

On another page you will find a Medical Reserve Corps blank. Fill it out and forward it to the Surgeon General, U. S. Army, Washington, at your very earliest opportunity. At present the age limit is 55. Men between 21 and 35 are wanted for duty with troops abroad, and men between 35 and 55 will be used in this country for recruiting and other duties. There is a niche for every medical man who wants to do his bit. He will get a living wage in so doing and there is, therefore, no excuse for him on account of a dependent family.

In the Medical Reserve Corps are three grades: first lieutenant at \$2,000, captain at \$2,400 and major at \$3,000. No one knows what the American policy will be, but in England medical men serve one year as first lieutenants and they are then promoted to captain and are given higher grades in accordance with their ability.

The Surgeon General will do his best to give all those who volunteer the opportunity to follow their own specialty when in the medical service, and he will go as far as he can when it is possible to give them the kind of service they desire, but physicians must remember that when they go into the army they become soldiers and must obey orders like other soldiers.

Your country needs you. Communicate with the Surgeon General without delay, and prove to the world that the medical profession has been tried and has not been found wanting.

The Social Good and Evil of Disease.

The contemplative philosophers of the East have been accounted for in a curious way. Goler remarks that just as the *Anopheles* mosquito had much to do with the decadence of the glory that belonged to Greece and Rome, because of its malaria carrying power, so the cholera organism is supposed to have stimulated the contemplative philosophy of the East because it prevented a popular appreciation of all that the sciences have brought to the western world. It so isolated, sickened and enervated the peoples of the East that their energies were sublimated into intellectual activities which were contemplative rather than forceful.

Of course, it may be said that this fact does not lessen the value of the contribution in itself. That is so, but it makes that value more relative. It must be a very small part of the truth.

The influence of the toxins of tuberculosis upon the psychological switchboard is a familiar example of the relationship of disease to human thought. In this case minds gifted with creative powers have been stimulated to increased output, and the powers themselves more or less enhanced.

Thus far we have spoken of diseases which, while exacting a heavy toll in morbidity and death, have yet wrought social effects that were desirable and beneficent. The decadence of the pagan world made way for Christian standards to which continued virility might have said nay, and so we must register a count for malaria. The decadence of the East through cholera gave us a body of thought healthful upon the whole. The decadence wrought by tuberculosis has been counterbalanced by a volume of creative work directly traceable to toxicin influences. So much for these things.

Goler suggests that we may, unless we are careful, become a decadent people once again because of syphilis and gonorrhea. Our optimism is hardly strong enough to prophesy any good that could possibly come out of such diseases. So far the war in Europe has added measurably to the danger that Goler postulates, and despite the precautions that are being planned for our own military camps we have our misgivings with respect to this country. We are about to conscript the flower of our youth. Venereal disaster to them would go far toward enhancing dangers already potent and operative. There can be no bright side to this menace.

Are we about to purchase democracy at a price which includes not only gold and blood, but also venerealization of our young manhood on a scale as appalling as that in the case of the European armies?

Will the ends justify the means? Have we any present warrant for believing that for the first time in the history of international duelling our army will escape grave infection? Are we merely fated to swell the statistics that have already proven the utter futility of certain human activities?

Our Selfish and Commonplace Egotists.

Stephen Leacock hits off very well the queer modern person who is over-absorbed in his own body. He parades the body, says Leacock, with a capital B, and this, not for anything that might be effected by it but presumably as an end in itself. The Monk or the Good Man of the older day despised the body as a thing that must learn to know its betters. He spiked it down with a hair shirt to teach it the virtue of submission. He was, of course, very wrong and very objectionable. But one doubts if he was much worse than his modern successor who joys consciously in the operation of his pores and his glands, and the correct rhythmical contraction of his abdominal muscles, as if he constituted simply a sort of superior sewerage system.

This botheration about the body, continues Leacock, is part of a general creed which such people are apt to have. They look at scenery to develop their taste for scenery; they give to the poor to develop their sympathy with poverty; they read the Bible regularly in order to cultivate the faculty of reading the Bible; and they visit picture galleries with painful assiduity in order to give themselves a feeling for art. They pass through life with a strained and haunted expression waiting for clarity of intellect, greatness of soul, and a passion for art to descend upon them like flocks of doves. When they die, says Leacock, they die presumably in order to cultivate the sense of being corpses.

Perhaps the war will divert a lot of such selfishness. You can't be an egotist when liable at any moment to be hit by a shell—if you are actually at the front—and you can't be an egotist at home when the real meaning of war comes home, as it has not as yet. It is

easy to understand how many selfish Englishmen of the sort described by Leacock have become normal human beings through the stress of war.

A Revised Definition.

Voltaire defined a physician as an unfortunate gentleman who is expected to perform miracles daily.

The definition still holds good, except for the word unfortunate. This should now be rendered fortunate.

And the definition in its new form holds nothing of the cynical implication in Voltaire's witty words.

No Aid and Comfort to the Enemy.

Changing the present law against contraception in the manner desired by certain objectionable agitators would be simply opening another avenue for the irregular practice of medicine. We should stand steadfast against any further breaking down of the barriers. Were this to happen we should stand convicted of imbecility. Recent decisions have established more strongly than ever the privileges of physicians with respect to hygienic birth control. It has been specifically stated by the courts that it is the duty of physicians to avail themselves of the measures in question when the prevention of disease is in issue. Why farm out our functions to tinkerers? Our rights in this matter are explicit enough, but have been maliciously obscured by certain transparent gentry, actuated in part by profiteering motives.

Bile Pigments in the Urine.

De Jager comments on the various inconveniences of the different technics in vogue for determination of the bile pigments in the urine, and describes two methods which he has worked out that he thinks are an improvement. The first is a modification of Gmelin's technic. The green ring at the zone of contact extends into the colorless fluid below, instead of up into the more or less naturally tinted urine. This renders the color reaction much more distinct and unmistakable and this technic has still other advantages which he enumerates. He uses for 5 c.c. of urine two drops of a 0.5 per cent. solution of sodium nitrite. Then, on top of the urine, is poured a 5 per cent. solution of the ordinary dilute hydrochloric acid. If salt is previously mixed with the urine, the two fluids blend less readily. In his second method he utilizes the insolubility of the zinc compounds of bilirubin. The urine is treated with a few drops of zinc chlorid. The resulting precipitate is filtered out, and over it on the filter is poured a mixture consisting of 1 c.c. strong hydrochloric acid, 9 c.c. alcohol and two drops of a 0.5 per cent. solution of sodium nitrite. The first drops which filter through are yellow; then comes an emerald green fluid the tint of which persists unmodified even if more nitrite is added. The depth of the green tint depends on the proportion of bile pigment present. Larger amounts can be used, 10 or 20 c.c. of urine with five or ten drops of a 10 per cent. solution of zinc chlorid. This method is very sensitive, simple and convenient. Various modifications of these tests are described, to adapt them to different conditions.—(Nederlandsch Tijdsch. voor Geneeskunde, J. A. M. A., March 10, 1917.)

There is one essential condition to be complied with before a blood pressure instrument can measure accurately. It must be broad enough to compress a sufficiently large area of veins, and so embrace a sufficiently large enough pulsing area around the artery.

Miscellany

CONDUCTED BY ARTHUR C. JACOBSON, M. D.

The Female of the Species.

The female mosquito possesses an interesting "personality." She is the biting member of the species. The males are devoid of the biting apparatus. Schwarz says the female likes lager beer. "Strong drink is an attraction to the wee roysterers." The males suck plant juices and such animal fluids as are available, without puncture; they also like tea and coffee. The female bites birds, snakes, frogs, turtles, lizards and humans. Blood is required by the females as a necessity for the propagation of their species—another example of the fitting of the body of the female first of all to the necessities of reproduction. In biting the female selects a place near a blood vessel. "Untroubled, lifting the hind legs, rubbing and moving them back and forth, in visible satisfaction, she fills herself full, literally to the point of intoxication, when she finally flutters drunkenly to the wall. So full is she that she is transformed into a deformed tube so transparent that the red fluid may be seen through the body wall." (Miss Evelyn Groesbeeck Mitchell.)

The feasting of the *Anopheles* begins about dusk, when "they hold high carnival and raise their ribald drinking song." The female lays eggs within thirty-six hours after a meal of blood.

Pairing takes place toward evening, the males assembling and dancing in large groups, the female occasionally flying into the swarm. The female is a veritable Messalina, never satisfied. The process of copulation is not arrested should a pair be precipitated into water, but the act is carried to a finish. The act is sometimes repeated many times a day for more than a month. Sometimes one intercourse lasts as long as five hours. *In copula* the male lies beneath. A special pleasure is to fly *in copula* through the woods at twilight.

Goeldi describes their Rabelaisian festivities as follows: "They swarm at nightfall, coming with evil humming to celebrate their bacchanalian orgies. An infernal music from numberless dancers fills our ears. They are an unholy gang, fluttering and describing fantastic evolutions and executing an orchestration or recitative chorus, ruled by the baton of Eros. The male's chant is high pitched, the female's low. There is nothing more unceremonious than the union of the sexes; a female suddenly leaves her companions and selects a male from among the dancers. They leave the wild multitude with a hum. Rarely do they show the faintest care; giddily they dash against everything, even rolling on the ground. Thus they tumble about in a frenzy. The female finally drags the male after her, he being in a state of exhaustion."

Things are not so dull in mosquito-land.

Mundane Heredity and Heaven-born Art.

"I was an idle student," writes Hawthorne, "negligent of college rules and the Procrustean details of academic life, rather choosing to nurse my own fancies than to dig Greek roots and be numbered among the learned Thebans."

The following "ominous" letter, as Moncure D. Conway calls it, is in point:

"Bowdoin College, Brunswick, May 31, 1822.

"My dear Friend—As I intend that you shall have no cause of complaint for my neglect this term, I take this early opportunity of writing to you. There is no news here, except that all the Card-Players have been found out. We have all been

called before the Government, two have been suspended, and several more, myself among the number, have been fined. The President has written to all the parents of those who were found out, and to my mother among the rest. If Uncle R—hears of it he will probably take me away from College. I noticed in the paper that No. 16885 had drawn a prize of 1000. Is not that one of your tickets? If it is, I congratulate you upon your good fortune, and only wish it had been 100,000.

"I have been much more steady this term, than I was last, as I have not drank any kind of spirit, nor played cards, for the offence for which I was fined was committed last term. The reason of my good conduct is that I am very much afraid of being suspended if I continue any longer in my old courses.

"I hope you will write to me soon and tell me all about your prize. I must conclude my letter as it is nearly recitation time, and it is probable that you will not be able to read half that I have written.

"I remain, your friend,

"N. H."

In a letter of the previous day, to his mother, he says: "I believe the President intends to write to the friends of all the delinquents. Should that be the case, you must show the letter to nobody. If I am again detected I shall have the honor of being suspended. When the President asked what we played for, I thought it was proper to inform him it was fifty cents, although it happened to be a quart of wine; but if I had told him of that he would probably have fined me for having a 'blow.' There was no untruth in the case, as the wine cost fifty cents. I have not played at all this term. I have not drank any spirits or wine this term, and shall not till the last week."

After leaving Bowdoin, Hawthorne entombed himself in the "haunted chamber" of the old family mansion in Salem for three years. So secluded was his life at this time that for months together he scarcely held human intercourse outside of his family, seldom going out except at twilight, and then only to take the nearest way to the most convenient solitude. The next ten years were spent in much the same way. His timid venturings out at this period remind one of De Quincey's nocturnal rambles. He tells of alternating depression and exaltation, which seems to us a significant syndrome. The depressive states he attributes to heredity on the paternal side.

Hawthorne's anti-social tendencies are easily discernible in some of his works. He repaid English friendliness by writing "Our Old Home." Both the "Scarlet Letter" and "The House of the Seven Gables" reflect darkly upon Puritan society. To be sure this was a natural expression of his peculiar and mighty genius, and no other society would have fared any better at his hands, had his environment been totally different. It is essentially a sombre genius, in which cathedrals are viewed in shadow, and evil lurks behind high altars. Beneath the minister's vestments flames the mark of sin, and over a proud family hangs the curse of sudden death.

The introduction to the "Scarlet Letter," in which his old associates at the Salem Custom House are unkindly dealt with, further illustrates Hawthorne's peculiar reaction against humanity. He tried to escape ordinary humanity by joining the Brook Farm community.

For art's sake, all this was well, and we would not have it otherwise. But thereby hangs a tale for the medical commentator.

In the light of what we have told, one may partially divine the significance of certain phases of the son Julian's career. His unfortunate entanglement in the affairs of a predatory concern and his expiation in a Federal prison are matters of record which probably spell something more than mere chance.

We are writing in the kindest spirit and with no touch of phariseism, but we have to take rational account of all the implications of the superman's genius. Far be it from us to judge the erraticisms of those men whose share in the divine fire is such that their violations of the conventional moralities, so-called, are as nothing in the scales of God. So great are their gifts to mankind that the verdict of the groundlings does not reach even to the nethermost confines of that place to which all artists are translated in the hereafter—the Tir-na-nOg of the old Celtic dreamers—whose judgments take no account of anything but the artist's soul.

The Diagnostic Laboratory

Conducted by CHESTER T. STONE, M. D.,
Brooklyn, N. Y.

A Convenient Oil Dropper.

A dropper for immersion oil, which will be found to be an asset in a busy laboratory, can be made easily and inexpensively from an ordinary rubber ear and ulcer syringe and a bit of glass tubing just large enough to pass through the orifice of the syringe. The end protruding from the syringe should be drawn to a point and bent at an angle while the other end should reach the bottom of the container.

This oil dropper puts accurate delivery of the oil and the size of the drop under the control of the user. It does not spill its contents when tipped over, nor does its exterior become covered with sticky oil drippings. It requires only one hand to operate. The delivery is uniform whether full or nearly empty, and the tube will not become clogged with dried oil.—L. L. Gilman (*Jour. A. M. A.*, April 21, 1917).

New General Bacterial Stain.

Munoz Uvra (*Rev. Vallisoletana de Especialides*, No. 11, 16) describes the method. 1. Dry and fix in flame; 2. Stain with 1% aqueous solution of methylene blue and pass through the flame; 3. Wash; 4. Wash for $\frac{1}{2}$ minute in a cold solution containing to each 100 c.c. 6 drops of sulphuric acid and potassium bicarbonate to saturation; 5. Wash in water for one minute; 6. Apply to the mount a few drops of 1:500 safranine in water; 7. After one minute wash and dry. Mount in colophane dissolved in gasoline. Bacteria are stained deep blue or violet, the nuclei show all details, the cellular substance is rose violet and the intercellular connections are dark gold color.

Detection of Scanty Tubercle Bacilli in Sputum.

O. H. Forssell describes the method he has employed with success since 1903, in concentrating the tubercle bacilli in samples of sputum that contain but few of them. He makes a point of collecting the sputum for 12 to 24 hours in these doubtful cases. He mixes 50 c.c. of this with 450 c.c. of a clear saturated solution of calcium hydrate, and shakes up well in a special glass vessel 6 c.m. in diameter and 33 cm. long, which holds about 550 c.c. Quite a brief period of shaking is found to give a completely homogeneous mixture, and this is allowed to stand for 24 hours. The vessel is conical in shape below, and ends in a tube fixed at a right angle and furnished with a tap 12 mm. in diameter. At the end of the 24 hours two centrifuge

tubes (each holding 15 c.c.) are filled at the tap; these are rotated for 10 minutes (6-7,000 revolutions a minute), and the sediment collected from them is fixed on a microscope slide, stained, and examined for tubercle bacilli in the usual way.—(*Practitioner*, Nov. 16.)

The Preservation of Erythrocytes of a Known Group for Isoagglutinin Group Determination.

The most efficient method for testing donors and recipients for blood transfusion is that of Moss as modified by Minot. A complete and accurate account of the technic employed has been given recently by Brem.

This procedure is very simple and practicable. However, a great difficulty that one encounters is the necessity of having on hand serum and red blood corpuscles of a known group, two or three. The serum, if kept sterile, will retain its agglutinative power for a month or longer. The suspension of red blood corpuscles, however, will not keep longer than forty-eight hours. The preservation of the red blood corpuscles then is a desideratum of great importance. With this aim in view the various methods devised for preservation of sheep cells for the Wassermann reaction have been applied to citrated suspension of human red blood corpuscles of known groups, two and three. The addition of formaldehyde to sodium citrate solution has given us very satisfactory results. The formalized cells preserved as long as four weeks showed neither hemolysis nor lost the property of becoming agglutinated with the serum of the proper group. The serum of the known group was preserved in sterile Wright's blood capsules.

The stock solution is made up by adding 0.5 cc. of 40 per cent. formaldehyde solution to 500 cc. of 0.85 per cent. salt solution containing 2 per cent sodium citrate. To 1 cc. of this solution is added three drops of blood and the suspension is preserved in cotton stoppered test tubes. When needed, the corpuscles are brought into suspension by gently shaking the test tube.—M. G. Wohl (*Jour. Lab. and Clin. Med.*, April 17).

Clarification of Complement in Relation to Its Preservation.

Williamson says the usual directions for the preparation of complement include the pipetting of the clear (?) serum after its separation. Such a serum will of course contain millions of cells. It is well known that human serum may contain amoebocytes for the guinea pig cells. Guinea pig complement would not be particularly active against guinea pig cells. Nevertheless, in order to prevent the possibility of a false positive from such an action, I am in the habit of centrifugating the complement to perfect clearness; that is, from twenty minutes to half an hour.

The complement so clarified will preserve its properties with slight gradual loss for days in the ice box without freezing. It will lose about one-third of its strength in five days. Titration at time of use is, of course, necessary.—(*Jour. Lab. and Clin. Med.*, April 17.)

Nascher says the principal sources of error in diagnosis in senile cases are (1) considering the senile degenerations as diseases; (2) mistaking the senile degenerations for diseases which they resemble; (3) overlooking symptoms of disease which are masked by the manifestations of senility; (4) unreliable history, ill-defined symptoms and atypical diseases; (5) misinterpretation of signs, symptoms and symptom-complexes.

The American Association of Clinical Research

JAMES KRAUSS, M. D., Permanent Secretary and Editor.

A REVIEW OF SOME CONDITIONS AFFECTING THE OPTIC TRACTS.*

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In the domain of the optic nerve and retina in the past two or three years there has been little done along the line of original research. Most of the work has been in the form of experimental advances in operative surgery.

Dr. L. Webster Fox has recently called attention anew to the fact of dental caries particularly pyorrhea alveolaris. He has estimated that pyorrhea is not only a source of trouble in disease of the eye but that it is a source of various systemic diseases. "Most pyorrhea pockets contain one or more pathogenic bacteria, staphylococci, streptococci, pneumococci, diplococci, etc. As for pus one can obtain one or two drops from a pyorrhea pocket by massaging it, and after five or six hours a similar amount may be obtained. It is not a high estimate to say that at least four drops of pus can be secured from the average pyorrhea pocket during the twenty-four hours. This would be an ounce in one hundred and twenty days, or three ounces in a year. We believe it to be a conservative estimate to say that the average tooth suppurates more than ten years before it is finally removed by pyorrhea. Thus about one quart of pus would be produced for each tooth, and for all 32 teeth, about eight gallons. The disgusting part is, that all this is swallowed. It would be of no great surprise if the production and loss of this large amount of pus should have marked harmful influence on the health and perhaps the longevity of the individual."

These pathological germs have a marked effect in operations for cataract, glaucoma, as well as in surgical operations in other parts of the body. Dr. Fox states that many cases of slow iritis, chorio-retinitis and vitreous opacities are due to endamoeba buccalis in conjunction with the pus producing bacteria, especially the streptococcus. These cases are particularly found in elderly people. Dr. Lang before the Royal Society of Medicine in London said that out of 215 cases attributed to sepsis which included cases of disease of the lacrymal sack, inflamed tonsils, appendicitis, colitis and nephritis, 139 were due to pyorrhea. Dr. Lang further stated that although there are many cases of pyorrhea, little attention is paid to it, the objection being made that very bad cases are found in people who are enjoying the best of health and do not complain. He says that these objectors have forgotten that nature raises a protective barrier to the invading bacteria and if the progress be slow the barrier is efficient as long as the patient is in fair health, but as soon as the general resistance is lower by illness or traumatism the toxin will pass through the defending barriers and some tissue may become the seat of disease.

A study was made by a number of Philadelphia physicians of the pituitary body. Dr. de Schweinitz in speaking of the visual disturbances in diseases of the pituitary body mentions the cause as being compression of the optic chiasm, optic tracts and optic nerves and the effects vary from simple blurred sight to complete

blindness, and the alterations in the optic nerve from partial or general pallor of the nerve end to partial or complete atrophy. Less frequently there may be optic neuritis. Alterations in the field for form and colors take place with various hallucinations, chromanoptias, photobia and palsy of the exterior ocular muscles, nystagmus and exophthalmus. In the discussion of pituitary disorders it was said that the hypophysis was probably a link in the chain of the internal secreting glands in controlling the skeletal development and sexual life.

Dr. Frazier in advocating glandular feeding as a means of combating various diseased conditions of the pituitary said that he did it with much hesitation for fear that it might become as serious in its effects as potassium iodide therapy in brain tumor. He says the latter is the "screen behind which we conceal our inability to make a diagnosis or to localize the growth, which has been responsible, more than any one factor, for the numberless cases of optic atrophy when brain tumor cases come to the surgeon for relief."

In an article on retro-bulbar-neuritis from intoxication from thyroidin, Dr. Miles Standish of Boston has recently called attention to the conditions resulting from the use of thyroid extract. He says that the number of cases reported have been small considering the extensive use made of the drug in the past few years but he thinks that the neuritis might have been overlooked in some of the cases. He finds eight cases of neuritis with central scotoma. Five cases were reported by Dr. H. Coppez—four women and a man between 30 and 40 years. Toxemia developed after using the drug in large doses for months. They had lost a large amount of weight and had general nervous disturbances. The vision in both eyes was reduced to one-tenth or less.

Hennicke reports a case of a man of 53 who had taken the thyroidin four years for myxedema. Three years after he was first seen the vision was reduced from 6/30 in the right eye to movements of the hand and the right nerve was white and the arteries scarcely visible. The thyroidin was discontinued and iodide of potash was prescribed and two months later, the vision in the right eye was again 6/30 and in the left 6/18.

Another case reported was a woman who had taken thyroid extract for three months to reduce her weight. Her vision was then reduced to two-thirds the normal and the perimeter showed an oval central scotoma for red and green. The stopping of the thyroid extract and the giving of strychnin caused the scotoma to disappear. Another case of myxedema has been reported treated with thyroid extract which improved this condition but caused optic neuritis and atrophy. Dr. Standish reports a case of a woman who had had myxedema treated with thyroidin for several years and she was supposed to be cured. She had taken five grains of thyroidin tablets three times a day for fourteen years and for five or six years, had taken one tablet each day. On the discontinuance of the thyroidin the vision was improved but the myxedema returned. She died very suddenly three months later.

A man of 40 who had had a blur before his right eye for eight months which was then reduced to one-tenth and in the left eye to eight-tenths. He had had an operation for the removal of half of the thyroid gland six years before and two years later the other half was removed on account of a fibrous tumor. Since the last

*Read before the eighth annual meeting of the American Association of Clinical Research, at New York, September 29, 1916.

operation he had had a pulse of 120. He was very excitable and had some uncertainty in walking. For four years he had taken one-half a grain of thyroidin before each meal. The ophthalmoscope didn't show much change in the color of the nerve or the size of the fields. He had a central scotoma, however, for all colors except blue.

A stout woman of thirty-three took on the advice of some friend, a proprietary medicine which was probably desiccated thyroidin. She took thirty grains on two consecutive days and sixty grains on the third. Her vision was then so reduced that she could not read. The nerves were pale and the arteries small. The vision was reduced to one-tenth; her pulse 120. There was a central scotoma for all colors. Her vision returned to 6/15 in the right and 6/22 in the left. The most startling thing in these cases says Dr. Standish, is the wide difference in the susceptibility of the different individuals to the drug. It is apparent the thyroidin should not be prescribed indiscriminately or sold to the public for the purpose of reducing weight.

More and more it is becoming recognized that retrobulbar neuritis is often due to conditions in the sphenoid or posterior ethmoid cells and it would seem in most conditions that it would be wise in cases of neuritis, whether retrobulbar or not, to have an x-ray examination and to thoroughly eliminate trouble in the sinuses before beginning treatment.

Dr. Bissell of Rochester has recently classified data from a study of the literature of perimetry. He says that perimetry can reveal the peripheral visual acuity if objects from 1 to 20 mm. in diameter are employed. The blind spot, scotomata and form fields can be distinctly outlined. It will also tell us much regarding the color sense, the area of the color fields and to a certain extent reveal the light sense by varying the illumination. He suggests that three instruments are necessary—a good perimeter, a stereoscope with Haitz' cards and some form of a campimeter. The doctor suggests that the methods are faulty because consideration is not given to retinal fatigue, quality of the light, size of the pupil, the error of refraction, the difficulties of fixation and the mental alertness of the patient. He suggests also that there is a lack of knowledge of what is physiological and pathological so that the examiner may know what to expect in a given case.

The diagnosis of the diseases of the optic nerve has been improved by the development of the perimeter which has been greatly improved by the studies of Walker and Bjerrum. It is possible by special apparatus to chart the size of the macula region as accurately as are the form and color fields of the retina.

Several additional cases of quinin amblyopia have been reported in the last two or three years from varying doses of the drug. It has long seemed to the writer that there was a great deal of carelessness used in the administration of quinin and the attitude of physicians in instructing the public of the dangers to both the optic and the auditory nerve from the use of this drug. Everybody realizes that tinnitus and deafness may be caused by the small doses but the statement made that it does not affect the hearing permanently is untenable for the reason that none of these cases have their hearing measured before or after they have taken the drug so that any intelligent deduction can be made. Where such measurements have been taken it has been shown many times that the hearing especially from small doses is many times permanently lowered and that the optic nerves are in danger of atrophy developed probably

from larger doses but with the same permanent effects has been amply demonstrated.

A similar effect upon the optic nerve is produced by the methyl alcohol either from injection, inhalation or absorption through the skin as in other poisons. There does not seem to be any relation between the amount of the alcohol and the damage to the eyes. As in thyroidin and other poisons there is a marked loss of vision with a central scotoma with evidence of optic neuritis. There may be nausea, vomiting and diarrhea and often times headache. If the alcohol can be eliminated, the vision will often return but many times the damage is permanent.

The use of neosalvarsan in the syphilitic conditions of the brain and nerve has been advocated very extensively by American ophthalmologists the past few years. Ehrlich originally cautioned against the use of salvarsan as being likely to cause atrophy of the optic nerve. Some reports from the use of this in Europe with disastrous results have been reported but in America when a Wassermann is positive from the serum or even when it is negative here, and there is a positive reaction from the cerebro-spinal fluid, neosalvarsan is very largely advocated and many cures have been reported.

This is a very hasty review of some studies which have been made in diseases of a nerve about which a few years ago very little was known.

War Medicine and Surgery

Gunshot Wounds of the Abdomen.

After discussing in detail these conditions, Lockwood, Kennedy, Macfie and Charles of the British Army, reach these conclusions from observation of 356 operated cases in the 144 non-operated cases:

1. Wounds of the large vessels to the liver, kidney, and spleen are fatal before they can come to operation. Wounds involving the pancreas are seldom seen on the operating table, by reason, perhaps, of the contiguity of the organ to large vessels; only one case was seen here. In that a foreign body was lodged in the tail of the pancreas.
 2. Antero-posterior wounds, especially in the epigastrium, are least dangerous, and wounds from side to side, especially low down, are dangerous.
 3. Wounds of solid viscera are not so dangerous as those of hollow viscera.
 4. Cases that come to operation with a herniated loop of bowel exposed do badly, especially if much bowel is lying exposed; the same is true when the stomach is partially herniated.
 5. Wounds of the stomach, colon, and especially the small intestine, require exploration, but in posterior wounds involving the colon the greatest care should be taken not to convert a retroperitoneal condition into an intraperitoneal one.
 6. Wounds of the liver and kidney should be carefully determined as such only, and then treated expectantly, doing no more than exploring and cleaning up the track, and not that if probably a through and through wound produced by an undistorted rifle bullet or shrapnel ball.
 7. Avoid resection.
 8. End-to-end anastomosis is preferable to lateral when resection is essential.
 9. Wounds of the diaphragm are not necessarily fatal, nor even to be greatly feared. Careful repair gives excellent results.
 10. Multiple drainage tubes are rarely necessary, and always to be avoided if possible.
 11. Abdominal lavage is a dangerous practice.
 12. Never leave free, unprotected gauze in the abdomen.
 13. Paul's tube should be relegated to the museum, except in very rare cases.
 14. Speed in operating is essential, not only for the benefit of the patient, but because of the demands of scores of less vitally wounded men requiring attention during an active offensive.
 15. Resection for faecal fistula is better done late when the patient is in England.
- During a heavy rush of work the question inevitably arises, "Is it possible to give every case of penetrating wound of the

abdomen the chance of operative interference, without prejudicing the chances of others who are wounded less vitally?" The answer is obvious—that granted an adequate and sufficient personnel, surgeons, nursing sisters, trained orderlies, etc., it should be feasible to deal with every case as its urgency demands, and that no class of case should be relegated to expectant treatment when surgical interference is indicated and capable of giving a wounded man even a remote chance of life.

Our results prove that abdominal surgery is at least as profitable—in a military sense—as the surgery of compound fractures of the femur, skull, etc.; the patients who recover make a rapid and complete recovery and become a satisfactory military asset sooner than the men who have been disabled by compound fractures of the skull, etc.

It was our aim at this casualty clearing station to operate on every case whose need of surgical interference did not warrant the delay his move to the base by ambulance train would involve.—(*Brit. M. J.*, March 10, 1917.)

Ligation of the Innominate Artery for Traumatic Aneurism of the Carotid.

Colonel Thomas Sinclair, of the British Expeditionary Force, France, says that since the successful ligation of the innominate artery by A. W. Smyth, of New Orleans, in 1864, this vessel has occasionally been tied, though not so frequently as to render uninteresting a description of a recent case. It may also be desirable to record it as a contribution to the statistics of military surgery in the present war.

An officer, aged 20, was shot Aug. 24, 1916, in the lower part of the right anterior triangle, the bullet issuing close to the superior angle of the scapula on the same side. He lay out for thirteen hours, during which time he bled so profusely as to saturate his tunic and necessitate dressing four times.

He was admitted to a casualty clearing station Aug. 25, and though he recovered speedily from shock, he showed marked anemia. A traumatic arterial aneurism formed in the lower part of the common carotid, which was treated expectantly for some days, but the rapid daily enlargement compelled operation on the fourteenth day. By this time the aneurism had attained the size of an orange, filling up the interval between the clavicle and the upper border of the thyroid cartilage, extending across to the line of the common carotid of the left side and overhanging the subclavian on the right. Its approximate measurements were $4\frac{1}{2}$ in. in breadth by 4 in. in height. Hoarseness developed in the later days, pointing to pressure on the recurrent laryngeal nerve. The respirations were 24; the temperature varied from 100° to 101.8° , and the pulse from 100 to 112. Both entrance and exit wounds suppurrated moderately.

The artery was exposed by a rectangular incision in the mid-line and along the clavicle. After detachment of the sternal head and part of the clavicular head of the sternomastoid and partial division of the sterno-hyoïd and sterno-thyroid muscles, it was found that no space was available between the clavicle and the aneurism. Therefore, one and a quarter inches of the inner end of this bone were resected. The apex of the lung, with its uninjured pleura, appeared in the dissection. The inferior thyroid veins and the larger veins were retracted without damage; in fact, no artery or vein was clipped or ligatured throughout the operation. The innominate artery was found behind the middle of the manubrium, and in tracing it upward it became apparent that the common carotid was so incorporated in the aneurism that the placing of a ligature upon it was impracticable, and therefore the innominate was tied with a single strand of No. 4 thirty-day catgut. The muscles were repaired with catgut sutures and a small drain tube left in for forty-eight hours.

The question of a distal ligature was now debated in obedience to the commonly accepted principle that the wounded artery should be doubly ligated and the contents of the sac turned out, or the sac excised, but these measures were advisedly omitted in this instance lest a copious bleeding from the sac in a markedly anemic subject, or the prolonging of an already lengthy operation, should jeopardize the patient. It was felt that a distal ligature should be placed on the carotid some days later, should the progress disappoint. Fortunately, the need for this step did not arise.

The subsequent course was uneventful; no septic changes from the original bullet track were propagated to the operation wound; and the patient was evacuated to the base Sept. 16.

Three months after operation (Dec. 13) an examination of the patient showed that no cerebral deterioration had resulted; his mental functions were normal. The vision of the right eye was perfect, though the vessels in the fundus were slightly reduced in size. There was no giddiness or disturbance of equilibration. The thrill, bruit, and pulsation could not be detected, and the aneurismal swelling had entirely disappeared. A degree of muscular atrophy and the absence of the end of

the clavicle rendered this examination more easy and convincing. Radial and ulnar pulses had not returned at the wrist; the circulation and sensation in the hand were good, but some feebleness with stiffening at the fingers remained, due, probably, to the prolonged disuse of the extremity rather than to tropho-neurotic changes. No doubt massage and exercises will remedy this temporary disablement. A satisfactory pseudoarthrosis had formed with the first costal cartilage, and active shoulder and elbow movements were good.—(*Brit. M. J.*, March 10, 1917.)

Gunshot Wounds of the Stomach.

Fibrich states that statistics of stomach wounds show that operation was successful in all cases in which recovery was probable, and that when death resulted after operation the wounds were so severe that recovery could not, under any circumstances, have been expected. All the cases of death from stomach wounds brought to hospital died before operation, and in no case in which, for various reasons, operation was not performed, was recovery heard of. In October, 1915, two cases were operated upon in hospital, and since then they had passed through a reserve hospital in fit condition. All stomach wounds, he thinks, ought to be operated upon by a well-qualified surgeon as soon as possible after the receipt of the wound, when a stationary hospital and complete asepsis are available. Cases had been received with a doubtful diagnosis of pelvic, pulmonary, or stomach wounds, which turned out to be serious perforations of the stomach or gut. Every clearing station should have at least one skilled surgeon, who should act only in that capacity.—(*Wien. klin. Woch.*, Oct. 19, 1916.)

Tetanus and the Use of Protective Serum.

Tetanus is no longer a frequent complication of gunshot wounds, but it is still, when it occurs, so likely to be fatal and so horribly painful to the patient that no efforts can be too great to get rid of the disease altogether. In the home military hospitals during the year ending July 31, 1916, we know from Sir David Bruce's analysis that 195 cases of tetanus were received, of which 96 died. The number received varied greatly from month to month, roughly in proportion to the total number of gunshot wounds. No obvious falling off occurred during the year, and there is at the present moment some evidence to hand of an increasing number of cases, some of them being of the fulminant variety so tragically common in the ranks of all the combatants during the early months of the war.

As a prophylactic injection of protective serum is now a routine measure at the front in every case of gunshot wound, it is evident that the protection afforded by a single injection is not complete. The official Memorandum on Tetanus advised the repetition of the serum injection in all septic cases at intervals of seven days in order to keep up the protection, but Sir David Bruce commented in his analysis on the fact that there was no record of the employment of serum as a prophylactic in the home military hospitals. Possibly the fear of harmful effects from repeated injections of horse serum may have acted as a deterrent, for "serum disease," as it may still conveniently be called, may be a very serious matter when it occurs—witness the rapid death from anaphylactic shock of animals injected with foreign protein appropriately dosed and spaced. It is well, therefore, to recall the statement in the Memorandum that the danger of anaphylactic shock is negligible when the prophylactic dose is contained in such a small quantity as 3 c.c. of horse serum, whatever the interval after the preceding injections. Highly concentrated serum in doses sufficient to maintain protection may be repeated at weekly intervals as long as is considered advisable without any fear of the occurrence of anaphylaxis.

So much for prophylaxis. The case is somewhat different in regard to the massive doses demanded in curative treatment after symptoms of toxemia have already shown themselves. The large doses of horse protein which necessarily accompany the requisite number of antitoxic units may be a source of inconvenience or danger. Captain S. Wyard, R.A.M.C., sets out clearly and simply how these inconveniences can be entirely avoided. A small rectal injection of antigen within 12 hours renders the individual refractory to a subcutaneous dose of any size, or if this amount of delay is held inadvisable the same result can be obtained by a succession of subcutaneous doses, beginning with a very small dose and rapidly rising to a large and efficient one.—(*Lancet*, Jan. 20, 1917.)

Gunshot Wounds of Head.

Richard Fibrich (*Wien. klin. Woch.*, October 19, 1916) states that as x-rays were not available at the clearing station in which he worked an operation was not undertaken in cases

of head injury unless a freely open wound was present. In such cases a gauze drain was inserted and the wound closed around it; the gauze was removed in three or four days. All other penetrating wounds of the skull were passed on to the division hospital, where they were sorted, moribund cases were treated with morphine and superficial splinters removed; in favorable cases discharging wounds were cleaned out under a local anaesthetic. Penetrating wounds were sent away after the first shock had passed (in one or two days), but those operated upon were retained until they showed signs of improvement (ten to fourteen days). Of 361 wounds, eighteen were operated upon in the clearing station. Of three cases of penetrating wound two died, and one, involving the mastoid process, recovered. Of fourteen open wounds, five died, seven were discharged improved, and two as recovered, one of them being passed for service. One case of splintered wound, produced by a grenade, recovered.—(Brit. Med. Jour., April 7, 1917.)

Localization of Foreign Bodies in the Pleura.

S. Gangi (*Policlinico*, December 11, 1916), in examining a patient wounded by a shrapnel bullet which was wandering free in the cavity of the right pleura, noted that by methodical percussion at the base of the thorax he could map out a small zone of intense pain corresponding to the temporary position of the foreign body. Six months after the patient first came under observation the symptoms characteristic of irritation of the pleura (dry cough, position in recumbency, etc.) were much diminished, whilst others not present at first—for instance, sighing—had appeared. But the relation between the temporary seat of the projectile and the painful zone at the base of the corresponding part of the thorax was unchanged. By the pain caused by moderate pressure at different points over the base of the thorax the author was able to determine the approximate position of the foreign body, but he was not able to define the limits of the space it occupied. In two other cases the projectile was seen by radiosity to be fixed in the phrenico-costal sinus. In one the foreign body had caused exudative pleurisy, traces of which remained at the time of examination. In the other the reaction of the pleura was limited to the incarceration of the projectile in the right phrenico-costal sinus. Even in these circumstances it was possible by methodical percussion of the base of the thorax to mark out a very painful zone within which radiosity revealed the presence of the foreign body.

In order to define the position of the foreign body in the pleura the author made the patient stand up or sit on his bed with arms folded and bent slightly forward so as to leave the circumference of the chest free. The percussion was begun on the paravertebral line. The left index was placed parallel to the long axis of the body with the object of covering with the percussed finger all the area of the complementary space of the pleura (bottom of the phrenico-costal sinus). The author percussed the base of one half of the thorax, following the complementary space from behind forward, and then examining the other half in the same way. Having determined the site of the foreign body by the position of the pain, he proceeded to define the extent of the zone and to map out its limits. Under the guidance of the percussed finger he marked out a line corresponding to the posterior margin of the painful zone. He next sought for the anterior limit, proceeding from before backwards. Having defined these two margins, he placed the left index perpendicular to the two lines marked out, and, percussing from above downwards, he sought for the upper limit. Proceeding from below upwards in the same way, he determined the lower limit. He then by palpation assured himself that along the course of the ribs comprised within the zone which had been defined there were no lesions that could explain the pain. The constancy of the results of radiosity in the three patients led him to the conclusion that the method described affords a good guide for the diagnosis and localization of foreign bodies in the pleura.—(Brit. Med. Jour., April 7, 1917.)

Removal of a Bullet Lodged in Wall of Left Ventricle.

We remarked last week that the surgery of the present war had furnished instances of the successful extraction of bullets from the heart substance, while removal from the heart cavity has been reported. At a meeting of the Académie de Médecine de Paris, March 3, Professor Gaudier, of Lille, described an interesting case in which a bullet lodged in the wall of the left ventricle and had little disturbing influence on the heart's action. The patient was a Russian sergeant, 23, was wounded near Monastir on Oct. 1, 1916. While lying prone on the ground a bullet grazed the left parietal bone and passed through the

supra-clavicular fossa. He became unconscious for a time which he could not fix, and was then able to get up. While being carried to a dressing-station he again became unconscious and passed the night in that condition. He was taken by motor ambulance and train to Salonica. During the journey he regained consciousness, but suffered severely from pain in the region of the heart and could not lie on either side. He was admitted to hospital, where the wound suppurred a little. He became very weak and the cardiac pain was continuous, and was increased by deep inspiration. He was sent to France, where he arrived Oct. 27 with the parietal wound still suppurating but the supra-clavicular one healed. The pain still continued. His general condition was good. While resting the respiration was normal and the pulse 80. He was put on ordinary diet and allowed to get about, but as the pain still persisted and there was some dyspnea after rapid walking he was submitted to radiosity, which showed that the bullet lay transversely near the apex of the heart and followed all the movements of the left ventricle. It was independent of movements of the diaphragm. Under either the third and fourth left costal cartilages were exposed and divided, the pleura incised, and the "costal shutter" turned outwards by an assistant. The pericardium was incised vertically for a distance of 5 cm. The heart was seized in the left hand and brought outside the pericardium. In the anterior wall of the left ventricle was a transverse ridge 1½ cm. long above the apex. This was due to the embedded bullet, which was removed. The pericardial incision was closed with catgut and the cartilages sutured. During the operation there was an occasional intermission of the pulse. Recovery was complicated by cough and some fever and some scattered pulmonary râles were heard. The projectile was a leaden Bulgarian bullet, 42 by 7 by 5 mm., with a sheath of "maillechort," flattened at its centre. Similar cases are rare, but one almost identical has been recorded by Duvergen, of Bordeaux.—(Lancet, April 14, 1917.)

Antimeningitis Inoculation.

In the summer of 1916 a mild epidemic of cerebro-spinal fever occurred in an infantry regiment of over 1,200 men at Frederiksstad in Norway. Eight cases occurred, and as isolation of the patients and their contracts seemed ineffective in preventing the spread of the disease Dr. E. Aaser was detailed in August to make a bacteriological investigation of the epidemic. This he did by the microscopical examination of smears, stained by Gram's method, of the naso-pharyngeal mucus of every man in the regiment. Time and the necessary facilities for any more accurate method of examination were lacking; Dr. Aaser says that he isolated as meningococcus carriers all the men whose naso-pharyngeal mucus contained a large majority of Gram-negative diplococci, and regarded as "doubtful" cases those whose mucus contained a few diplococci. He found 87 carriers and 70 doubtful cases among the men of the three regimental companies in which cases of cerebro-spinal fever had occurred; no such cases had occurred among the 280 men of the fourth company or among the 100 regimental cyclists, and Dr. Aaser discovered 40 doubtful cases among these, but no meningococcus carriers. To stop the spread of the epidemic it was decided to offer to inoculate every man in the regiment with a meningococcal vaccine. It so chanced that one of the meningococcus carriers, isolated by Dr. Aaser, developed meningitis next day and died. This fact, coupled with fear of the meningococcus carriers, induced all but two or three of the men to be inoculated. The vaccine used was a sterilized emulsion of cultures of eight or ten strains of meningococcus, containing 300 million cocci per c.c.: the dose was 1 c.c. The inoculations were carried through in ten hours. A few of the men had slight chills and headache during the night following the inoculation, but none were seriously incommoded; most had a redness and swelling measuring 3x5 cm. at the site of inoculation.

Dr. Aaser injected himself with 3 c.c. of the vaccine without any ill-result, and a few days later took a second injection of 4 c.c. equally without any general reaction. The plan had been to give all the men a second inoculation four or five days after the first. There was some unwillingness at this point; but it happened that a general order was issued just then stopping all leave for the rest of the training in the case of those not vaccinated. So all the men received a second inoculation, the dose being 1 c.c. In general this produced more local redness but less local swelling, and a weaker general reaction than the first inoculation. No further case of cerebro-spinal fever occurred in the regiment after this vaccination, during the general autumn manoeuvres; but whether *propter* or merely *post hoc* Dr. Aaser does not attempt to decide. He notes that a similar prophylactic antimeningitis vaccination was carried out in the winter at Tönsberg, 250 men receiving three successive inoculations with 1, 2, and 3 c.c. of meningococcal emulsion, without any harmful result.—(Lancet, April 7, 1917.)

Treatment of Tetanus.

Major Dean, of the British Army, treated 25 cases with serum, in addition to morphia, potassium or sodium bromide, and chloral hydrate. The extent to which hypnotic drugs were employed varied enormously in the different cases.

One patient appears to have consumed during seven days about 10 drachms of potassium bromide and 10 drachms of chloral hydrate. At the end of this period the patient was in a sleepy and comatose condition and the pulse was small, rapid (130), and irregular. Nevertheless, in spite of the very considerable quantity of drugs which had been given, there was well-marked spasm of the jaw, neck, abdomen, and thigh.

On the other hand, in several cases the number of doses of hypnotics given was very small, and in a few no hypnotics were given at all. The majority of the patients to whom but few doses of hypnotic drugs were given made good recoveries and their general condition was far more satisfactory than that of those who had received frequent doses of drugs. The use of hypnotic drugs in the treatment of tetanus should probably be secure necessary sleep. The amount of hypnotic drugs which each patient. In those cases in which pain can be moderated and sleep secured by relatively small doses, it is unnecessary and probably injurious to give larger amounts. In tetanus, as in other toxic conditions, the less morphia and chloral are given the better are the patient's chances of recovery.

1. All the 25 patients had suppuring wounds. In 4 cases the wounds were of a comparatively trivial nature. In 9 cases the wounds at the time of the onset of tetanus had completely or almost completely healed. If every wounded soldier, irrespective of the size or condition of the wound, was given a prophylactic injection on his arrival in this country, there would in all probability be a still further reduction in the number and severity of cases of tetanus.

2. Compound fractures are a particular source of danger, and were present in 11 of 25 cases of tetanus.

3. In 3 of the 25 cases the disease ran an extremely short and mild course. These were the only three patients who had received a prophylactic injection after their arrival in England.

4. One result of prophylactic injection is to prolong enormously the incubation period, with the result that tetanus may occur after the wounds have completely healed, and the patient has been transferred to a convalescent hospital. Under these circumstances the earliest signs are readily overlooked.

5. The pain associated with the early and local symptoms may lead to a diagnosis of rheumatism or muscular rheumatism.

6. The earliest signs may consist of clonic or tonic contraction of muscles in the immediate neighborhood of a wound, usually in the nearest flexor group. The signs may remain localized for many days, and it is characteristic of some cases occurring in inoculated patients that the period of onset is enormously prolonged.

7. After a longer or shorter interval generalization occurs. The muscles of the jaw, neck, and abdomen become stiff. There is profuse perspiration and the reflexes of the lower limbs are exaggerated. In many cases the pulse-rate may be very rapid and the temperature normal. On the other hand, even in inoculated persons and after a very long incubation period, the disease may begin suddenly with spasm of the muscles of the jaw and neck.

8. Of 5 mild cases treated by intramuscular and subcutaneous injection of serum 5 recovered. Of 14 cases treated chiefly by intravenous injections 13 recovered. Of 5 cases treated by intrathecal with or without other injections 3 recovered. One patient who was given an intravenous and subsequently an intrathecal injection died. If the signs are well localized and are not spreading rapidly intramuscular injections afford an adequate method of treatment. In severe cases, and in those in which signs are generalized, an intravenous injection (30,000 units) under deep chloroform anesthesia should be given. After such injection the further progress of the disease is usually arrested, and definite improvement may be expected two to seven days later.

9. There is reason to think that the danger of intravenous injection has been exaggerated. The essential principle of serum treatment is to give a very large dose of antitoxin at the earliest possible moment. This object can be most easily attained by the intravenous route.

10. In 4 cases serum treatment was confined to a single intravenous dose of 30,000 units. In 3 other cases no serum was given subsequent to the intravenous injection. In these 7 cases recovery was as rapid as in 6 other cases in which subsequent injections were given. The serum of patients was shown to contain free antitoxin at various intervals up to 39 days after an intravenous injection of 30,000 units.

Syphilis

The Treatment of Syphilis.

Since the introduction of Ehrlich's arsenical preparations, salvarsan and neosalvarsan, there has been some modification of opinion as to the amount of certainty of cure attending them, and the amount of danger accompanying the use of these preparations; and although they are still accepted as the principal therapeutic agents in the treatment of syphilitic conditions, they are no longer depended on entirely to effect the cure. The old-time mixed treatment with mercury and the iodide of potassium still has a place within the interval between the salvarsan injections. Since the introduction of the arsenical preparations, the amount of treatment necessary to be taken by a patient has become by comparison relatively small, and the amount of disability in hospitals, or otherwise, has become almost negligible.

Results in chronic cases are particularly marked after there has been over-treatment with mercury, where it seems that there has been established an anaphylaxis or sensitiveness to this drug, and manifestations aggravated rather than improved. Yet the failure attending the use of the arsenical preparations in cerebrospinal syphilis can be explained only on the ground that the drug, under the ordinary methods of application, does not penetrate into these recesses. Even the ordinary diagnostic serum reactions do not operate in this form of syphilis. The previously known "parasyphilitic" affections, such as tabes dorsalis or general paresis, are now understood to be active syphilis, in which the infective agent is hidden away within the cerebrospinal system, is not diagnosed by ordinary reactions for syphilis nor affected by the ordinary methods of treatment. The hidden character of the infective agent in these chronic luetic conditions of the nervous system has a parallel in the chronic malarias, in which the plasmodia are no longer found in the general blood stream, but are hidden away in the usually much enlarged spleen.

The so-called "parasyphilitic" affections are now diagnosed by lumbar puncture in the very early stages, before the damage is so great that neither diagnosis nor treatment can avail to influence the course of the diseases. It is considered that the presence of leucocytes and an increase of globulin content are indications of the presence of cerebrospinal syphilis.

In general, the dangers of the use of these arsenical preparations are almost nil, particularly with the use of the neosalvarsan. However, it must be used guardedly in such conditions as renal insufficiency, advanced cancer, Addison's disease, arteriosclerosis, chronic intoxications, existing diseases of the nervous system, and in any condition where there is capillary degeneration. Ehrlich's contraindications are the triad—oarthritis, coronary sclerosis and myocarditis. To these may also be added diseases of the optic or auditory nerves, chronic meningeal congestions or diseases, and terminal cerebrospinal conditions. In any event the use of this drug, because it floods the system with a large amount of highly toxic and irritating material, is in the nature of heroic treatment, and must not be undertaken without a thorough knowledge of the patient and his constitution. And even in the classic contraindications it will yet be a matter for the judgment of the physician to determine on the use or on the rejection of these valuable preparations.—(Boston *M. and S. Jour.*, p. 103, 1917.)

The Diagnostic Value of the Colloidal Gold Reaction.

The colloidal gold reaction was first employed by Lange in 1912 to distinguish between syphilitic and non-syphilitic serums, but without success. With the cerebro-spinal fluid, however, results were obtained which corresponded closely with those of the Wassermann reaction in cases of syphilis. Lange found that while normal cerebro-spinal fluid, diluted with a 0.4 per cent. solution of sodium chloride, caused no change in a solution of colloidal gold, abnormal fluids caused partial or complete precipitation, with resulting color changes which appeared to be almost specific for certain diseases, especially those of syphilitic origin. This apparent specificity was represented by maximal color changes occurring in certain dilutions of the cerebro-spinal fluid. The color changes passed from red-orange through red-blue, purple, blue, and pale blue to complete decolorization. The dilutions of cerebro-spinal fluid with 0.4 per cent. sodium chloride were ten in number, commencing with 1 in 10, and increasing by geometrical progression up to 1 in 5,120. It was found that cerebro-spinal fluid from cases of tabes and cerebro-spinal syphilis gave the maximal color reactions within a range of dilutions constant enough to warrant the use of the term "luetic curve"; that fluid from dif-

ferent types of meningitis gave the maximal reactions in the higher dilutions, and that fluid from cases of general paralysis caused complete decolorization in the first four to six dilutions so regularly as to suggest the term "paretic curve."

The true explanation of this reaction is still unknown. Lange regarded it as due to different qualitative mixtures of proteins, but this view of untenable, since it has been shown that globulins exert a protective influence on colloidal gold solutions. Others look upon it as an immunity reaction, in accordance with the view that immunity will ultimately be reduced to terms of colloidal chemistry. Others, again, consider it to be a purely physical phenomenon, probably of electrical nature. In spite of this diversity of opinion as to the nature of the reaction, most observers recognize its specific significance, differing, however, as to its clinical value.

The colloidal gold reaction has been investigated by Miller, Brush, Hammers, and Felton, of the Johns Hopkins Hospital. The objects they had in view were: (1) The preparation and standardization of a suitable colloidal gold solution by a simple and reliable method; (2) the determination of the clinical value of the reaction in syphilis of the central nervous system, extraneuronal syphilis, and non-syphilitic cases; (3) comparison of the reaction with the Wassermann and other tests.

The gold solution was prepared by the method of reduction because of its simplicity and the greater stability of the resulting solution. For further details on this point and on the laboratory methods followed the reader is referred to the original article.

The results obtained by these observers were briefly as follows: (1) In the great majority of cases normal cerebro-spinal fluid gave no reaction with colloidal gold. (2) The reactions in tabes and cerebro-spinal syphilis were not characteristic, but were, as a rule, of the syphilitic type, and hence valuable in confirming a doubtful diagnosis, especially when the result of one or more of the other tests was negative. (3) The reaction type in general paralysis was uniform and gave complete precipitation in the first four to eight tubes. It also occurred in cases in which all other abnormalities of the spinal fluid were absent, and may, therefore, be regarded as specific in this condition. Occasionally it was observed in cases which were clinically syphilitic, but showed no signs of general paralysis. A "paretic reaction" must, therefore, be regarded as of grave prognosis in cases of syphilis, as general paralysis may ultimately develop. (4) In congenital syphilis, with the exception of juvenile general paralysis, the reaction was less characteristic and of less value than the Wassermann. (5) In early tuberculosis meningitis the reaction was often of the "luetic type," and apt to be misleading unless the examination was repeated several times, when there was a gradual transition to the meningeal type of reaction. (6) In multiple sclerosis the reaction was very similar to that of general paralysis. This is interesting in view of the fact that the cerebro-spinal fluid from cases of multiple sclerosis often shows pleocytosis, and a positive globulin reaction, and occasionally a positive Wassermann. (7) Comparing the gold reaction with the Wassermann test, the authors found that in 252 spinal fluids from cases of tabes, general paralysis, and cerebro-spinal syphilis there was never a positive Wassermann with a negative gold reaction, but in four cases of general paralysis the gold test was positive, while the Wassermann was negative. (8) The colloidal gold reaction does not replace other tests of known value for the cerebro-spinal fluid, but in some instances it is more sensitive and more specific, especially in general paralysis. The value of the reaction depends entirely upon the use of a reagent suitably prepared and standardized.

The authors conclude that no reaction or group of reactions obtained from the cerebro-spinal fluid is pathognomonic of syphilis of the central nervous system, and utter a note of warning against the growing tendency to divorce laboratory diagnosis from clinical observation. "The two are fundamentally complementary, and each will lose in value unless they remain so."—(Brit. Med. Jour., December 30, 1916.)

Injuries to the Pancreas Following Operations on the Right Kidney.

It is suggested that many cases of severe post-operative distension may be due to injury to the pancreas during kidney operations. Such injury may occur, as is shown by the autopsy on one case described by Hugh H. Young and J. A. C. Colston of Johns Hopkins Hospital, and is a most serious accident. The pancreas extends around the duodenum to the rear at the point where it is nearest the kidney, and at this point the structures are fixed so that they cannot recede in case of trauma. In the case mentioned, an aberrant artery to the pole of the kidney made necessary the use of clamps in the depths of the wound, the pancreatic tissue being crushed. The authors advised greatest care to avoid this event.—(Jour. Urology,

Diagnosis and Treatment

Diabetes and Alimentary Rest.

When the sugar has disappeared from the urine, John Hume recommends this dietary:

1. *Breakfast*.—2 ozs. of oatmeal well boiled and taken with cream; 3 ozs. of smoked bacon and one whipped egg fried; tea with a little cream, and, as a sweetening agent, saccharine, if desired; 8 ozs. of fresh white fish may be substituted for the bacon, if preferred.

2. *Midafternoon*.—A glass of equal parts of cream and warm water or one glass of warm lemon juice, to which one teaspoonful of glycerine has been added.

3. *Dinner*.—6 ozs. of roast meat, with green vegetables and the centres of boiled potatoes; custard unsweetened, flavored with lemon or vanilla, and taken with cream, if desired. As a third course, Gorgonzola cheese with lettuce is very suitable. Soup and 8 ozs. of white fish served with butter may occasionally be taken in place of the roast meat.

4. *Tea*.—A glass of lemon juice or diluted cream or tea with saccharine may be taken.

5. *Supper*.—6 ozs. of fish or 3 ozs. of butcher meat with vegetables or tomato; fish may be taken, if roast meat was served with dinner. Soda water or beer is a suitable drink for the evening meal.

The patient should be instructed to take only very limited quantities of bread. When the patient is first placed on this diet, the urine should be examined after each meal. If there is an increase of the sugar, the carbohydrate should be restricted at once, and a fast arranged. As sugar may also be produced from albuminous substances, so that it may be necessary to restrict the whole diet.

The addition of yeast to the diet is beneficial, and greatly aids in diminishing the output of sugar. It can be given alone, but is more palatable when mixed with beer. The centres of potatoes are a welcome addition to the diet, and can be used as a substitute for bread. Of forty cases so treated, ten were completely cured and do not require to continue the fast; twenty-six are working but require to fast once a week, while of the remaining four, one died with Bright's disease, one with consumption, and two after operations. (Practitioner, Nov., 1916.)

Acute Syphilitic Meningitis.

Boris Bronstein, of Odessa, Russia, considers that the term acute syphilitic meningitis should be more particularly applied to acute meningeal phenomena of the secondary period, sometimes preceding, but more frequently accompanying the cutaneous manifestations of this period. The pathology is essentially a meningovascularitis with hypersecretion of the cerebrospinal fluid. Prodromal symptoms, such as headache and insomnia, may or may not occur. Acute syphilitic meningitis at its height, Bronstein says, presents the clinical picture of the tubercular form, differing from the latter by the indistinctness of the symptoms, such as contractures and stiffness of the neck, and by the absence of any marked disturbance of the pulse and respiration. In the luetic form fever is apt to be absent, and there may be remissions and relapses. Lumbar puncture reveals a considerable hypertension of the cerebrospinal fluid, albumin in quantity, and a marked lymphocytosis with plasmazellen. The cerebrospinal fluid may yield a positive Wassermann even when the blood serum is negative. Other manifestations of syphilis are to be looked for. The immediate prognosis is rarely fatal, but the ultimate prognosis should be reserved. Prophylactic treatment is recommended whenever the cerebro-spinal fluid shows a lymphocytosis, even when all meningeal symptoms are wanting. The treatment consists in frequently repeated removal of the cerebro-spinal fluid in considerable amount, combined with intravenous injection of cyanide of mercury and intraspinal injections of colloidal mercury. Neosalvarsan or salvarsan have a much more rapid action, but must be prudently handled in neurologic lesions of syphilis.—Inter. Clinics, December, 1916.

Climatic Influence in the Treatment of Tuberculosis.

Walter C. Klotz, of Los Angeles, with April number of the *American Review of Tuberculosis*, compares the results of the treatment of tuberculosis in the Vermont Sanatorium at Pittsford north of Rutland on the western slope of the Green Mountains, with those at the Barlow Sanatorium at Los Angeles. The study is based on a series from each sanatorium of two hundred consecutive unselected cases, tabulated two and a half years after discharge. Since both groups were under his own care the personal factors influencing diagnosis, in-

terpretation and classification may be disregarded except in so far as the Barlow cases were seen at a later time than the Vermont cases. Both sanatoria were well constructed and privately endowed. Therapeutic measures were the same. Patients were of the same class and in the same percentage of races and nationalities and came from occupations and conditions of living that were strikingly similar, though not identical. Personal habits after discharge are difficult to estimate, but were probably more favorable in California. The diet was more costly and excessive with a higher per cent. of protein in the Vermont Sanatorium. In favor of the California Sanatorium was an average stay of 7.4 months which made possible more exercise and graduated labor than the average stay of only 4.6 months at the Vermont Sanatorium.

In the Vermont Sanatorium 34.5 per cent. of the patients were admitted as incipient cases, 64.5 per cent. had bacilli in their sputa and fever of 100° F. and over was found in 16 per cent. on admission and in 11.5 per cent. on discharge. In the Barlow Sanatorium 4.5 per cent. were admitted as incipient cases (though more experienced physical diagnosis may account at least in part for this low figure and the apparent advantage to the Vermont group), 56 per cent. had bacilli in their sputa, and fever of 100° F. and over was observed in 65 per cent. on admission and in 3 per cent. on discharge. In the Vermont series there were more acute ulcerative cases as contrasted with a greater number of chronic fibroid cases with acute exacerbations in the Barlow group. In Vermont haemoptyses were more frequent and serious, fever was more frequent and persistent, cavity cases did not do well and there was a greater number of relapses. There was a greater immediate gain in weight.

A tabulation of the after results obtained in the two groups shows a striking advantage in the California group. A careful consideration of all collateral factors and possible sources of error would still seem to warrant the conclusion that greater and more lasting benefit is obtained under the climatic conditions of California than under those of Vermont. In Vermont there are extremes of temperature with endless variations, much rain and snow and a moderately high humidity. In California there is an absence of extremes with a greater daily fluctuation insuring cool nights. The rainfall and humidity are moderate and there is much sunshine. Outdoor life is obtained with the least possible discomfort and is practically continuous.

Chronic Duodenal Indigestion in Children.

John Foote, of Washington, D. C., says this condition is said to occur most frequently in children after the first year, and especially in those who have suffered from dietary errors, usually with antecedent contagious diseases, or from prolonged intestinal infections. This form of indigestion seems to be accompanied by deficiency or pancreatic ferments, especially lipase. A mild duodenitis, which either passes up to the pancreatic duct or diminished hormone formation, seems responsible for the condition.

Diminished bile production may also be a factor. Anemia, loss of weight and mental underdevelopment occur. Large pendulous abdomen are common. Bottle feeding has been employed. Fever may be encountered, vomiting almost never. The number of daily stools varies from 3 to 12. They are thin, contain some mucus and flakes of whitish material and have a very foul odor. They give an acid reaction and microscopically contain not only large quantities of fat soaps, but also a considerable amount of neutral fat, but rarely starch granules. It is to be differentiated from mesenteric tuberculosis and acute duodenal indigestion. The treatment consists in reducing the food elements which have proven indigestible—namely, the fat—and stimulating enzyme production by the administration of hydrochloric acid and pancreatic ferments.—(Inter. Clinics, December, 1916.)

The Significance of the Pericardium.

Barnard's classical description of the pericardium as an inextensible supporting membrane for a dilating heart, capable of resisting an intense pressure of more than one atmosphere, is, of course, only applicable to it under exclusively physiological conditions. Pericarditis and the sustained pressure of pericardial effusions relax its fibers and stretch it to much greater capacities. Y. Kuno, in the *Journal of Physiology*, 1915, p. 2, confirms his observations. By removing the pericardial membrane in animals, he has established the fact that it is indispensable for the mechanism of a normal heart's action. The first result is a functional irregularity. Venous overdistension soon follows, and a series of pathological changes are induced by valvular incompetence, chiefly of the curtain valves. Myocardial ruptures occur first in the outer layers, butulti-

mately involve mainly the inner left ventricular wall, the septum, and the entire surface of the heart.—(Prog. Med., Nov. 3, 1916.)

Dysentery.

W. Wagner, of Cork, in discussing this subject reaches these conclusions:

- Both in amebic and bacillary dysentery secondary invasion of the ulcerated intestinal wall by organisms from the intestinal lumen is an important factor aggravating both the local and general condition. The pyrexia so frequently observed in the later stages of amebic dysentery is a result of this secondary invasion, and though usually toxic in origin may be due to bacterial invasion of the blood stream. A similar septicemia may occur in the bacillary type of the disease.

- Amebic dysentery may be latent, the ulcers being confined to the cecum and producing no symptoms. Apart from the danger of the disease becoming active such cases may act as foci for the spread of the disease.

- Every case of amebic dysentery should be treated by the administration of at least 10 grains of emetin. Incomplete treatment may result in the patient becoming a cyst carrier and a danger to the community.

- The prevention of amebic dysentery depends upon the elimination of cyst carriers, rapid and complete disposal of faecal matter, and protection of food from dust and flies.

- In bacillary dysentery the earliest pathological change in the intestinal wall is dilation of the vessels and a marked hemorrhagic exudation into the submucous coat. Leucocytic accumulation is a later phenomenon resulting in necrosis of tissues.

- Mannite-fermenting dysentery bacilli can exist in the intestine in an avirulent form. The presence of such an organism in the stools loses much of its significance in the absence of a positive Widal reaction.

- The agglutination reaction in dysentery is a valuable means of differentiating the bacillary type of the disease. In Shiga infections specific agglutinins are invariably present after the first week of the disease. Distinct agglutination with a serum dilution of 1 in 100 is diagnostic.

- Judging from serological tests it would appear that certain organisms, normally saprophytic, may in both types of dysentery stimulate the production of specific agglutinins as the result of invasion of the ulcerated intestinal wall.

- The toxins of Shiga's bacillus are highly pathogenic to rabbits. Subcutaneous injection with either living or killed cultures results in the development of paralytic symptoms and death. The characteristic lesions of the human disease cannot be readily reproduced. (Lancet, Oct. 21, 1916.)

Active Tonsillitis.

In this stage N. P. Stauffer insists on the patient remaining in bed, because of the possibility of an endocarditis complicating his tonsillitis. A dry ice collar is applied, with frequent sponges with alcohol and oil of wintergreen rubs. Gargle every half hour with 50 per cent. H₂O₂. Paint the tonsils liberally with 60 grains to the ounce of nitrate of silver. Guaiacol, 25 to 50 per cent., in olive oil, is the next best remedy. This should be rubbed in the tonsil twice daily for several days. It produces a hot, peppery sensation for about a minute, followed by immediate relief. Sodium salicylate, grains 10, every three hours with water, or lemonade, will relieve the headache and backache. If the tonsillitis is accompanied by peritonsillar abscess, with its excruciating pain and profuse flow of saliva, the only relief is the early use of the knife. The pus is usually high up in the supratonsillar space, or between the anterior pillar and tonsil on a level with the molar teeth, or between the posterior pillar and the tonsil. If the knife has made a good long and deep incision and no pus comes, take an Allis blunt dissector and run it around the tonsil, and you are almost certain to find the pus. Do not be afraid of hemorrhage, as the swollen tonsil and pillars will soon close off any bleeding points by pressure.—(Ther. Gaz., December, 1916.)

Prophylactic Vaccination for Hay Fever.

B. P. Sormani (*Nederl. Tijdschr. voor Geneesk.*, Amsterdam, II, 2470) gave an account of the success that attended his prophylactic and therapeutic treatment of hay fever in 48 patients by the use of injections of pollen extracts. His method was based on the work of Noon, Dunbar, Wright, Freeman, and others. It depended on the fact that the instillation of the watery extract of a minute quantity of an appropriate pollen into the conjunctival sac will bring on diagnostic reaction in a susceptible person. Noon standardized the method by selecting the pollen of the common fodder grass *Phleum pratense*, or timothy grass, as the most toxic variety, and 1-1000th milligram of its pollen as the unit of

hay fever toxin. A watery solution containing the extract of 1-1000th mgr. of timothy grass pollen per c.c.m. is said to have unit strength, and is used as the standard with which other varieties of pollen may be compared. The conjunctiva of normal persons is insensitive to extracts of a strength of 20,000 units.

Sormani prepared his pollen extracts by grinding the pollen up with sand and water and sterilizing with carbolic acid in the case of the extracts used for hypodermic injection, by heat in the case of the extracts employed for the ophthalmoreaction. He found that most of his patients reacted to extracts of about 500 units' strength, the figure here varying between 5 and 5,000 units. He used these solutions of pollen toxin in both the prophylaxis and the treatment of hay fever. For prophylaxis, from 10 to 20 subcutaneous injections were given at intervals of a week, beginning in February; of 14 patients thus treated, 6 were freed from hay fever, 6 were much improved, 2 were little benefited. Sormani gave an account of 33 other patients treated by this method for hay fever, and expressed considerable satisfaction with the results obtained.—(*Practitioner*, November, 1916.)

Abnormalities of Myocardial Function.

T. Stuart Hart of New York says the signs which point to a favorable prognosis in this condition are:

1. The resumption of a physiological rhythm.
 2. The maintenance of a rate under 70.
 3. The absence of a pulse deficit.
 4. The absence of extrasystoles.
 5. An average systolic blood-pressure of over 110 in the rheumatic group, and of over 160 in the arteriosclerotic group.
- The symptoms which make the outlook grave are:
1. A ventricular rate remaining for more than a few days above 130.
 2. A persistent pulse deficit of 20 or over.
 3. The occurrence of frequent ventricular extrasystoles.
 4. A falling average systolic blood-pressure.
 5. A ventricular rate which shows wide fluctuations under slight physical or emotional stress.

The gravity of a given case is often indicated by the amount of treatment requisite to secure a slow ventricular rate without a pulse deficit; some cases require very little treatment, and in these the immediate prognosis is good; others yield only to the most active therapeutic measures applied over a very long period. In such the danger is about proportional to the therapeutic measures found necessary.—(*Arch. Diagnosis*, Vol. ix, No. 1.)

OBITUARY NOTICE.

HENRY WINANS BURNETT, M. D.

Dr. Henry Winans Burnett, of Providence, Rhode Island, one of our most esteemed contributors and a pediatrician widely known in this country, died on May 7th at his home after an illness of four weeks. He had been in poor health for some time, but had practised medicine actively. The doctor was born in Brooklyn in 1873. After leaving the College of the City of New York, he was graduated from the Long Island College Hospital in 1897. In 1898 he became a member of the house staff of the Kings County Hospital, leaving there in 1899 to take up private practice in East Greenwich, near Providence, where he remained for one year. In 1900 he became a resident physician at the Butler Hospital, in Providence, shortly thereafter establishing a practice in that city which soon became limited to pediatrics, in which department of medicine he quickly achieved prominence. The foundation for this was laid by work in the Harvard Graduate School covering several years. He was the physician in charge of children's diseases at the Rhode Island Hospital, the North End Dispensary and the St. Vincent de Paul Infant Asylum. The doctor was a member of the board of managers of the Providence District Nursing Association; Chairman of the Baby Welfare Committee; member of the Providence Medical Association, the Rhode Island Medical Society, the American Medical Association, the Association of Military Surgeons and New England Pediatric Society. He was also a member of the University Club of Providence. Formerly he was a captain in the Medical Corps, Rhode Island National Guard, and lately a member of the Medical Reserve Corps. Recently the doctor was appointed Assistant Surgeon General of the State of Rhode Island. In 1902 he married Avis Rebekah Sibley of Chicago. He leaves his widow, two sons, two brothers, and his mother. As a man and as a physician Dr. Burnett could be best summed up by a word which all who knew him will feel is a just characterization—thoroughbred.

The Influence of Superstition on Medicine.

Lawrence Irwell, of Buffalo, N. Y., says (*Practical Druggist*) that the words "incantation" and "charm" seem to have been derived from the ancient practice of curing diseases by poetry and music. Democritus (470 B. C.) says that many diseases are capable of being cured by the sound of a flute when properly played. Marianus Capella (author of "*Satyricon*") assures us that fevers may be cured by suitable songs. Galen (130-201) considered that the sound of the flute was efficacious in gout and also cured epilepsy. Asclepiades (1st century B. C.) employed the trumpet for the relief of sciatica, and says that it should be continued till the fibers of the part begin to palpitate, when the pain will vanish.

The influence of superstition on medicine may be accounted for by the fact that ideas concerning the action of drugs must have been combined with those connected with supernatural agencies, for the phenomena of nature in very early times were attributed to spirits. Diseases were supposed to be due to an evil spirit, therefore to cast the spirit out was equivalent to curing it, and the methods used for this purpose were by no means always ineffective in curing disease. Incantations and spells (charms) were generally used in addition to a remedial agent, but the incantations almost invariably got the credit of effecting the cure. "In the opinion of the ignorant multitude," said Francis Bacon, "witches and impostors have always competed with physicians."

There has at all times been a peculiar propensity in the human mind to foster a belief in the supernatural, and perhaps more especially in respect to medicine on account of the ignorance and obscurity with which it was surrounded in early days when almost every disease was attributed to punishment for evil-doing, the working of some demon, or the influence of the stars. This explains the use of such articles as were strange or rare as remedies. The writer's study of the alleged cure of surface cancers by radium—it is not reported to have cured other cancers—leads him to the conclusion that the employment of radium as a therapeutic agent is a superstition based upon the rarity of this element.

"The employment of precious stones as medicine arises from an Arab superstition which supposed them to be the residence of spirits," says De Boot (1600-1653). They were first used as amulets, and then gradually came to be administered inwardly for various ailments. "Mystery is the very soul of empiricism," wrote Paris (1200-1259). "Withdraw the veil and the confidence of the patient instantly languishes." A propensity to attribute every ordinary and natural effect to extraordinary and unnatural causes is one of the striking characteristics of medical superstition. The properties that herbs possessed were originally attributed to the planets which were supposed to influence them. Many ancient philosophers believed that there existed some panacea that would prolong life beyond its natural term, the most common cause of death being the action of the external air in drying and exhausting the body. To prevent this, saltpeter was taken every morning in three grain doses.

We have today customs which are a survival of the days of superstition. For example, when a mother hangs round the neck of her child coral and bells, or a necklace of coral without bells, she little imagines she is perpetuating an ancient superstitious practice. The soothsayers attributed many mystic properties to coral, and it was believed to ward off the evil eye, and drive away devils and evil spirits. For this purpose it was suspended from a child's neck as an amulet. Pliny and Dioscorides greatly valued the therapeutic properties of coral, and Paracelsus recommends that it be worn around the necks of infants to keep away fits, sorcery, charms, and to serve as an antidote to poisons. The tiny bells sometimes suspended to the coral were originally intended to frighten away evil spirits, and not merely to amuse the child. Matthew

Paris relates that the negroes of the West Indies believe that the color of coral is always affected by the condition of the wearer's health, it becoming paler in disease.

We must admit, however, that all the remedies which originated in superstition were not useless. Some, whether by accident or not, had a natural power of efficacy, and led to discoveries of importance. In the time of the English King James I (1566-1625), a powder known as the sympathetic powder of Sir Kenelm Digby had a great reputation for healing wounds. Whenever a wound had been inflicted, this powder was applied to the weapon which had caused it, which was also smeared with grease and dressed two or three times every day. The wound itself was brought together and carefully bound up with clean linen rags, but above all it was to be let alone for seven days, at the end of which time it was generally found to be healed. This was, of course, said to be due to the wonderful properties of the sympathetic powder, no credit being given to the exclusion of dirt and microbes or to nature's healing powers. The sympathetic healing powder is believed to have been calcined sulphate of copper. The rust of the spear of Telephus, alluded to by Homer as a cure for the wounds which that weapon inflicted, was probably verdigris, which was later used as a surgical dressing.

The cures supposed to be produced by touch of a person belonging to a monarch's family show the power of faith, or the influence of the mind upon the body. The royal physicians who chose the patients who were to be touched no doubt took care to choose those who had a tendency to recover, and who, if left to nature, would probably have gradually recovered. Boswell relates that Johnson, when thirty months old, was taken by his mother to London to be touched by Queen Anne on the advice of a physician of note named Floyer.

From time immemorial the ignorant have had the most unbounded confidence in nauseous remedies, and it would seem as if the more disgusting the medicines were, the greater faith they had in them. Further, the higher the price asked, the more implicit the faith seemed to be. The collyrium of Denares, a famous quack eye lotion, was sold at Constantinople for nine pounds (\$45) a bottle, and the elixirs sold by Paracelsus and Van Helmont (about 1,500) brought big prices. The doctrine of signatories, as it was called, is of great antiquity. It implied that every natural substance which possesses any medicinal virtues indicates by an obvious and well-marked external character the disease for which it is a remedy. The bloodstone was used to stop bleeding on account of its marks resembling drops of blood. The root of the mandrake was originally used as a remedy for sterility. Tumeric was used to cure jaundice which was regarded as a disease, not merely a symptom; poppies were supposed to cure all diseases of the head. Another belief of the ancients was that all poisonous bodies possessed a powerful attraction for one another, and that "like would cure like." This hypothesis may have suggested to Hahnemann his *similia similibus* doctrine, but it cannot have given him the minute dose theory. The hair of a mad dog was worn as a charm to prevent hydrophobia, and the foot of the ape was used as a remedy for the bite of a dog. On the same principle, we are solemnly assured that three scruples of the ashes of a witch after she has been well and carefully burned at the stake is a certain protection against the evil effects of witchcraft.

Many ancient superstitions are so deeply rooted that they find believers at the present day. Some people still have faith in the efficacy of red flannel. For sore throat, rheumatism in any of its numerous forms, or any kind of swelling they believe it will cure when flannel of other colors is useless. This belief may be traced to the color of the cloth often used in incantations, which was always red. Of course, people who believe in such therapeutic measures as red flannel are no longer numerous.

The Physician's Library

Botanic Drugs: Their Materia Medica, Pharmacology and Therapeutics. By Thomas S. Blair, M. D. Cloth, 394 pages. \$2.00 net. Cincinnati: Therapeutic Digest Pub. Co., 1917.

Fischelis a year ago drew attention to the increasing scarcity of imported medicinal products, and urged the utilization of available native supplies. He asked for a larger use of galenicals, especially of indigenous plant origin. Tschirch, of the University of Berne, in a recent address, deprecated the increasing use of the so-called active principles and synthetic medicaments, and that many physicians have disaccustomed themselves to the use of plant drugs. The wish expressed by him in London in 1905, "Let us go back to drugs," has already met with a larger echo than he dared hope at that time.

This book contains a convincing argument for the restudy and enlarged use of galenicals, which have been used empirically for over 3,000 years. All of the botanic drugs in common use are described, with a critical review of their therapy. The exact dose is given, how best employed and the distinctions in the use of allied drugs are gone into thoroughly. The book is practical, sensible and dependable and appears at an opportune time.

Advice to Women. On the care of the Health Before, During, and After Confinement. By Florence Stacpoole, and revised to conform to American practice by Lydia E. Anderson, R. N. Cloth, 265 pages. Price, \$1.25 net; by mail, \$1.37. New York: Funk & Wagnalls Co., 1917.

Written by women, for women, this work will prove valuable to all expectant mothers. The instructions as to the general care, food and exercise, if carefully followed, will lessen, in large degree, the discomforts and possible dangers attending childbirth.

A Manual of Nervous Diseases. By Irving J. Spear, M.D., Professor of Neurology at the University of Maryland. Cloth, 660 pages, with 169 illustrations. \$2.75 net. Philadelphia and London: W. B. Saunders Co., 1916.

Believing that the bugbear of neurology on the part of the student is due to improper knowledge of the anatomy and physiology of the nervous system, the author sets out to overcome this difficulty by presenting these subjects in a lucid manner. He has succeeded and has presented a neurological work which reads interestingly. The general practitioner will find this book of exceptional value in diagnosing conditions which have proven baffling.

Cataract. By W. A. Fisher, M.D., Professor of Ophthalmology in the Chicago Eye, Ear, Nose and Throat College. Published by the College, 1917.

This is an interesting monograph on senile, traumatic and congenital cataract, from the author's well-filled case-book. Many illustrations add to its value.

The Operating Room. By Armour Smith, R. N., Superintendent of Nurses at the Staten Island Hospital and at the Woman's Hospital of the State of New York. Cloth, 295 pages, with 57 illustrations. \$1.50 net. Philadelphia and London: W. B. Saunders Co., 1916.

The nurse needs this book, for it is a splendid compilation of the duties of the operating room nurse and an exemplification of how to perform them. Formulae are given, instrument lists and linen are specified, together with the innumerable details that go to make up the successful work of the operating room nurse.

Suggestive Therapeutics. By Henry S. Munro, M.D., of Omaha. 4th edition. Cloth, 480 pages. St. Louis: C. V. Mosby Co., 1917.

In this day when medical men are realizing that psychotherapy really has a place in medicine, a book like this is welcomed. The foundation of the work is hard, common sense, with the addition of those psychic fundamentals which are necessary to accomplish the desired ends. It is well worthy of consideration.

International Clinics. Vol I, 27th series. \$2.00 net. Philadelphia and London: J. B. Lippincott Co., 1917.

Treatment, medicine, dermatology, psychiatry, public health and surgery are treated in this volume in 16 timely articles. Readers of this quarterly get a bird's-eye view of the subject of medicine, with many more comprehensive excursions into the subject.

The Surgical Clinics of Chicago. Vol. I, No. 1 (February, 1917). Octavo of 221 pages, 83 illustrations. Published bi-monthly. Price per year: Paper, \$10.00; cloth, \$14.00. Philadelphia and London: W. B. Saunders Co., 1917.

Among the contributors to this issue are Drs. Ochsner, Bev-

an, Kanavel, Eisendrath and Andrews. The various clinicians handle their subjects in a clear-cut and practical way and if this issue be any criterion, this collection will be a fitting successor to the Murphy clinics.

Medical Clinics of Chicago. March, 1917. \$8.00 per year.
Philadelphia and London: W. B. Saunders Co. 1917.

The initial clinic on anaphylaxis is alone worth the price of the series; while the remainder are of real value. These clinics are demonstrating their value with each issue.

Birth Control Decisions.

By MR. JUSTICE CROPSEY.

People, &c., v. Byrne—The defendant stands convicted. The information in Special Sessions charged the violation of section 1142 of the Penal Law, and also contained a count under section 1141. The evidence introduced showed that the defendant had sold an article to be used by women which was designed to prevent conception. This was the basis of the information and resulting conviction. The article was not worth more than 50 cents, but was sold by the defendant for \$2. In conjunction with the sale the defendant disseminated literature dealing with the question of conception and setting forth various ways and means by which it could be prevented. One of these pamphlets is labeled "What Every Girl Should Know." This contains matter which not only should not be known by every girl, but which perhaps should not be known by any. The distribution of these pamphlets, especially to girls just coming into womanhood, would be a shocking disgrace to the community. The defendant claims that her undertaking in furnishing this information and these appliances is prompted by a sole desire to benefit her sex. However that may be, the evidence shows there was a decidedly commercial aspect to the undertaking, for not only was the article sold at a great profit, but in addition a regular fee was charged to each visitor, and the visitors numbered one hundred or more a day. The defendant moves for a certificate of reasonable doubt. She urges as her only point that the statute under which she has been convicted is unconstitutional. Her claim is that the statute is unreasonable and oppressive and contains no exception; that it is not an exercise of the police power, as it does not promote the health, life, morals or welfare of the community, and that it interferes with the free exercise of conscience and the pursuit of happiness. Section 1142 of the Penal Law was enacted in 1887, and section 1141 was amended in the same year. Both sections have been enforced since that time and a number of convictions had under them. They have never been held unconstitutional. Section 1142 makes it a crime to sell, give away or exhibit, or offer so to do, or have in possession with such intent, or to advertise for sale or distribution, any article or drug for the prevention of conception, or purporting or represented to be for that purpose, or to give information orally as to when or where such an article or drug can be obtained, or to manufacture either the article or drug.

It is urged by the defendant that this is an unreasonable and oppressive enactment in that it prevents women who do not wish to bear children from adopting means to obviate that result. But this section is not directed against the use of such articles or drugs. It merely prohibits their manufacture and distribution. If it did in terms prevent the use of the articles and made their use a crime it would nevertheless be constitutional. And this would be so even if there were no exception made to the provision. The defendant contends that the statute violates sections 1 and 6 of article 1 of the State Constitution and the Fourteenth Amendment of the Federal Constitution. Section 1, referred to, provides: "No member of this state shall be * * * deprived of any of the rights or privileges secured to any citizen thereof unless by the law of the land or by the judgment of his peers." Section 6 declares that no person shall be "deprived of life, liberty or property without due process of law." The Fourteenth Amendment is of similar purport. Unless restrained or prohibited by the constitution, the legislative power is unlimited. The claim that statutes may be declared void because deemed to be opposed to natural justice, when they do not violate any constitutional provision, does not find support in law (*Bertholf v. O'Reilly*, 74 N. Y., 509; *People v. West*, 106 N. Y., 293; *Tiedeman's Treatise on State and Federal Control of Persons and Property*, p. 9; *Cooley, Principles of Constitutional Law*, p. 30). The so-called police power is vested inherently in the Legislature and is not derived from any constitutional provision. It has never been surrendered, but, on the contrary, has been exercised to the fullest extent (*House v. Mayes*, 219 U. S., 270, 282; *South Carolina v. United States*, 199 U. S., 437, 454). The Fourteenth Amendment to the Federal Constitution did not interfere with the exercise of this power by the states (*Barbier v. Connolly*, 113 U. S., 27, 31; *Keller v. United States*, 213 U. S., 138, 145). It is undisputed that by the exer-

cise of the police power the state may regulate the relative rights and duties of all persons within its jurisdiction so as to guard the public safety, protect the public morals, secure the public health and promote the common good and welfare (*House v. Mayes*, *supra*; *Jacobson v. Massachusetts*, 197 U. S., 11, 25). Can it be said that this statute was not properly enacted under the exercise of this power? The person asserting the unconstitutionality of an enactment has the burden of establishing his contention. All legislative acts are presumptively constitutional and they will not be nullified unless it is clearly shown that they were in excess of legislative power (*Chicago, B. & Q. RR. v. McGuire*, 219 U. S., 549, 565, 567; *Price v. Illinois*, 238 U. S., 446, 453; *Rast v. Van Deman*, 240 U. S., 342, 357, 365). Even "the earnest conflict of serious opinion does not suffice to bring it within the range of judicial cognizance" (*Erie R.R. v. Williams*, 233 U. S., 685, 699). The "police power may be put forth in aid of what is sanctioned by usage or held by the prevailing morality or strong preponderant opinion to be greatly and immediately necessary to the public welfare" (*Noble State Bank v. Haskell*, 219 U. S., 104, 111). It justifies the enactment of laws designed for the protection of the public and to guard against some danger, real or anticipated, in our social or commercial life (*People ex rel. Nechamius v. Warden*, 144 N. Y., 529, 535). The general and long continued belief as to the desirability or necessity for the legislation must be considered in determining its constitutionality (*Muller v. Oregon*, 208 U. S., 412, 420, 421; *Matter of Viemeister*, 179 N. Y., 235, 240).

It was proper for the Legislature to determine whether the general dissemination of information upon the subject of birth control and the sale of articles designed to prevent conception was prejudicial to public morals and inimical to the welfare and interests of the community. That this defendant does not agree with the legislation and feels aggrieved that it should have been enacted does not make it unconstitutional. The claim is that she and others believe that there should be birth control and that the right to spread that doctrine should not be curtailed, but this does not make the enactment class legislation (*People, &c., v. Haynor*, 149 N. Y., 195; *People ex rel. Armstrong v. Warden*, 183 N. Y., 223; *Wither v. Bloem*, 163 Mich., 419, 35 L. R. A. N. S., 628). The same situation exists regarding most, if not all, statutes defining the different crimes. Some people will protest because the enactments do not agree with their views. The Legislature has declared that the spread of information on this subject and the sale of articles designed to accomplish its object are acts detrimental to public morals and welfare. The defendant has not shown this to be otherwise, and the court is of the opinion that the public good justified the passage of this statute and requires its enforcement. The state has the "primary right of self-preservation" (*People, &c., v. Most*, 171 N. Y., 423, 431), and the question of propagation is necessarily related to this right. The literature distributed by the defendant is as harmful as the use of the articles sold. The book entitled "What Every Girl Should Know" is especially objectionable, as has been stated. It contains pictures of certain organs of a woman, in addition to the text concerning which comment has already been made. The distribution of this book and the diffusion of knowledge of its contents, especially among girls and boys coming into the period of adolescence, would produce most harmful results. The information would make people generally believe that by using the means suggested the act of intercourse could be had without fear of resulting pregnancy.

While there are other reasons that keep unmarried people from indulging their passions, the fear that pregnancy will result is one of the potent ones. To remove that fear would unquestionably result in an increase of immorality. A statute making it a crime to advertise of the treatment or cure of venereal diseases has been held to be a valid exercise of the police power of the state, as it is against public policy to advertise that such diseases can be easily and cheaply cured: "it has a decided tendency to minimize unduly the disastrous consequences of indulging in dissolute action" (*State v. Hollinshead*, 77 Oregon, 473, 477, 151 Pac. Rep., 710; see also *People, &c., v. Kennedy*, 176 Mich., 384, 395, et seq.). The defendant in the Hollinshead case could have claimed, as does this defendant, that his act in advertising was in the interest of the people who could be benefited by his treatment, but that is not the question which determines the constitutionality of statutes. The contention that the section is unconstitutional because it "interferes with the free exercise of conscience and the pursuit of happiness" could probably be made by some defendant against every penal statute. No authority is cited in support of this contention. If each individual's conscience and desires for happiness were to determine whether a law is constitutional, none of them could be upheld. Defendant's counsel, in his brief, says that by this statute "a woman is denied her absolute

(Continued on p. 28.)

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Appealing for More Army Doctors.

So many are the American physicians who have come forward promptly and eagerly with the offer of their professional services in our own armies and those of our allies that there is a certain ungraciousness in calling attention to, and emphasizing, the fact that these offers have not yet been anything like numerous enough to meet the needs of the present situation. Those needs are so urgent, however, and upon the immediate meeting of them so much depends, that there can be no hesitation in echoing the eloquent and vehement appeal made this week by Colonel Roosevelt for the immediate enlargement of the Medical Reserve Corps.

But it is not alone he and other "laymen" who are filled with anxiety lest our great forces soon to be assembled on land and sea fail to have the protection from disease that properly trained doctors in adequate numbers alone can give them. The members of the American Medical Association, now in convention here, have had this enormously important subject strongly presented to them, and their House of Delegates, or executive body, has appointed a committee to confer with President Wilson personally, with a view to giving to the official medical heads of the army, the navy and the Public Health Service power and means to provide physicians for our allies, whose lack of them is now becoming desperate, and to take care of our own soldiers and sailors at the same time.

For it is a lamentable circumstance that, though the Government's medical departments have nowadays responsibilities proportioned to the full possibilities of modern hygiene and sanitation, the full authority and facilities essential to the realization of those possibilities have not yet been conferred upon them. The duties, like the capacities, of the competent army surgeon in these times and in thoroughly modernized armies have been multiplied and extended far beyond those of his not very remote predecessor. The care of wounded men in the field, though still a part, and a dangerous part, of his work, has become far from being all or even the most of his task. Nobody questions the courage of our young physicians—or of their elders, for that matter—and if they are not volunteering in sufficient numbers it must be because the conditions of their service have not been adjusted to meet modern demands.—(New York Times.)

X-Ray Technic.

Course in radiological technic will be given at the Bellevue Hospital x-Ray Department under the direction of Dr. I. S. Hirsch, Director of Laboratories, assisted by Clayton Ulrey, of the Department of Physics of Columbia University. These courses are limited to physicians. The lectures will be given three times weekly from 8:15 to 9:15 P. M. Applications must be submitted to Dr. George O'Hanlon, Supt., Bellevue Hospital, New York.

The American Medico-Pharmaceutical League.

The 20th annual convention of this association was held May 28, in New York. Dr. Brothers, the corresponding secretary, announced that 1,079 new members had been elected during the past forty-nine months. With few exceptions, the present officers (including the Executive Committee) were re-elected. These additional members of the National Executive Board were appointed by Dr. Ramon Guiteras, the re-elected President: Otto Prellwitz, M. D., Peter J. Gibbons, M. D., Wolff Freudenthal, M. D., L. Duncan Bulkley, M. D., Alfred W. L. Jackson, M. D., Felix Pfeiffer, M. D., Harris Weinstein, M. D., and Harry W. Mantel, M. D. Morris Schneer, D. D. S., was appointed official organizer of the New York County Branch. Dr. S. Brothers was appointed Chairman of the Credentials Committee, and Edward A. Bank, Ph. G., manager of Announcements for next year's Auxiliary Program.

A vote of thanks was tendered Prof. Guiteras, for his active interest in the medical association, during the past year.

Pharmacist Robert E. Jones reported that Senator Whitney's Narcotic Bill passed the Legislature, with practically all of Judge Collins's amendments.

The reading of papers occupied most of the time of the convention. The program consisted of nineteen medical, five dental and thirteen pharmaceutical papers.

The delegates represented the Medical Society of the County of Kings; the Alumni Association, Columbia University College of Pharmacy; the College of Jersey City, Department of Dentistry; the New York County Pharmaceutical Society; the College of Jersey City, Department of Pharmacy.

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(Continued from p. 214)

right of enjoyment of sexual relations unless the act be so conducted that pregnancy may be the result of the act. This clearly is an infringement upon her free exercise of conscience and pursuit of happiness." The same statement could be made with equal force about the statute defining adultery or a statute that might be enacted making fornication a crime, or any other definition of a crime. We have discussed the question as though there were no exception in the statute. But section 1145 of the Penal Law provides that physicians may use or prescribe the drugs and articles referred to in sections 1141 and 1142 "for the cure or prevention of disease," and that such articles may be supplied to them or on their prescription. The defendant maintains that this is not an exception, as it does not permit physicians generally to use the articles when necessary, but only to work a cure or prevent a disease. We read this section otherwise. Under it a physician would be justified in prescribing the prohibited articles or drugs if, in his opinion, the health or condition of the patient required it (People, &c., v. Byrne, Kings County Special Term, opinion by Kelby, J., New York Law Journal, December 5, 1916, p. 847). There is no reasonable doubt of the constitutionality of the statute in question, and, as the guilt of the defendant is clear, the motion for a certificate of reasonable doubt must be denied. The fact that the governor has thought it proper in the exercise of the power given to him by the constitution to release this defendant from her imprisonment before the expiration of her sentence does not make the decision of this motion an academic one. The appeal from the conviction still stands, unless withdrawn, and hence this motion should be passed upon.

* * * * *

People, &c., v. Sanger—The defendant has been tried in the Court of Special Sessions and found guilty, and is now awaiting sentence. This was stated by her counsel on the argument. She applies for a writ of prohibition to restrain the court from pronouncing judgment. The claim is that the Special Sessions is without jurisdiction (1) because an indictment has been found by the grand jury for the same offense, and (2) because the offense charged in the information is a felony. The information charges in effect a violation of sections 1141 and 1142 of the Penal Law by selling and distributing indecent and obscene articles and disseminating information to prevent conception. This crime is charged to have been committed on October 26, 1916. An indictment was found against the defendant charging her with the crime of "maintaining a public nuisance" in that she sold and distributed the kind of articles and imparted the character of information stated in the information. This offense, the indictment states, was committed on November 14, 1916, "and at divers times prior thereto." There is nothing to show that the acts of October 26, 1916, which form the basis for the charge in Special Sessions are a part of the charge carried in the indictment. The indictment does not allege any act on October 26. It is not enough that the occurrences of that day *may* be included. It must appear that they are. But even if the indictment specifically charged the maintenance of the nuisance on October 26 it would not supersede the information. Section 31 of the Inferior Criminal Courts Act provides in effect that where an indictment is found "for the same offense" as charged in an information the Special Sessions is divested of jurisdiction to try the case. Here the indictment was not for the same offense that was charged in the information. "Maintaining a nuisance" implies the continuance of a condition, not merely a single occurrence (People v. Weeks, 172 App. Div., 117, 120). Even though the act of October 26 formed a part of the charge of the nuisance it would not constitute the crime.

There are a number of instances in the Penal Law where an act constitutes a crime and also is an element of another crime. A violation of sections 1141 and 1142 is expressly made a misdemeanor by the language of the sections. But the offense charged would be a misdemeanor if it were not specifically so classed. The defendant's contention is that as the possible punishment could be a year's imprisonment (sec. 1141), and as a person may be sent to state prison for one year (sec. 2182), and as a felony is defined to be a crime punishable by imprisonment in a state prison (sec. 2), this crime is a felony. But the Court of Appeals has held otherwise, and the question is not open for consideration (People ex rel. Devoe v. Kelly, 97 N. Y., 212, affirming 32 Hun, 536). Should the foregoing view be erroneous and defendant's contentions sound, nevertheless no writ should issue. Prohibition is granted but rarely. The courts do not favor it, and so its issuance is restricted to cases of absolute necessity. It never lies where the party aggrieved can raise his contentions by an appeal, although it be conceded the court sought to be restrained was without jurisdiction (People ex rel. Hummell v. Trial Term, 184 N. Y., 30; People ex rel. Ballin v. Smith, 184 N. Y., 96; People ex rel.

N. Y. Disposal Corp'n v. Freschi, 173 App. Div., 189). Nor will it lie to relieve a person from attending pursuant to a subpoena issued without power, for that question can be raised by habeas corpus, although the person will first have to suffer the inconvenience or worse of being committed for contempt (People ex rel. Livingston v. Wyatt, 186 N. Y., 383, 394). The cases cited by defendant (People ex rel. Weeks v. Platt, 173 App. Div., 451; People ex rel. Woodbury v. Hendricks, 168 App. Div., 553; People ex rel. Jerome v. General Sessions, 112 App. Div., 424) do not hold to the contrary. They all recognize and enforce the general rule stated. Defendant's counsel on the argument stated he has made his points in the Court of Special Sessions and had raised his questions there. They can therefore be reviewed on appeal (People ex rel. N. Y. Disposal Corp'n v. Freschi, 173 App. Div., 189). The motion is denied.

—New York Law Journal.

The Rutgers College Course in Sanitary Science.

Never before has the country come to such a realization of the importance of public health work. The progressive states have established active health boards in all the important cities and villages. In some states, a medical degree is required of the health officer. In many states, however, it has been discovered that the most effective work is not done by the practising physician. Not only is the training of the medical course inadequate for proper administration of the health officer's work, but in many cases the successful physician hesitates at enforcing the law in a community from which he received the majority of his income. Many writers have pointed out the need of full time health officers. Few have indicated the impossibility of supplying all communities with health officers who have the degree of M. D. plus the degree of D. P. H. Massachusetts Institute of Technology has for a long time been supplying a part of the demand for sanitarians without the M. D. degree.

The concensus of opinion of the foremost experts in public health seems to be that while the medical degree is desirable, it is not necessary for all sanitarians. It is undoubtedly true that some of the medical students who started out to secure the M. D. degree and go into practice might be induced to spend the last two years of their medical course in sanitary work, but it is also true that such individuals might prove poorly prepared by the first two years of medical work.

Rutgers College has recently established a four-year course based largely on the curricula at other schools. The aim of this course is not only to prepare men for public health work but to train men in fundamental sciences so that they may become specialists, if they so choose.

In order to stimulate local interest in sanitation, a series of public lectures in Sanitary Science and Sanitary Engineering has been established for the year 1916-17. The list of lecturers include:

Professor Jacques Loeb of the Rockefeller Institute, New York; Prof. J. G. Needham, Cornell University; Dr. G. M. Potter of the Bureau of Animal Industry, Washington, D. C.; Prof. A. E. Taylor of the University of Pennsylvania; Allen Hazen, C. E., New York; Dr. K. F. Kellerman, Associate Chief of the Bureau of Plant Industry, Washington, D. C.; Dr. J. F. Anderson, Director of Squibb's Laboratory, New Brunswick, N. J.; Dr. Theobald Smith, Director of the Rockefeller Institute, Princeton, N. J.; Dr. C. L. Alberg, Chief of the Bureau of Chemistry, U. S. Department of Agriculture, Washington; Dr. W. T. Sedgwick, Massachusetts Institute of Technology; Dr. R. B. Fitz-Randolph, Assistant Director of the State Hygienic Laboratory at Trenton, N. J.

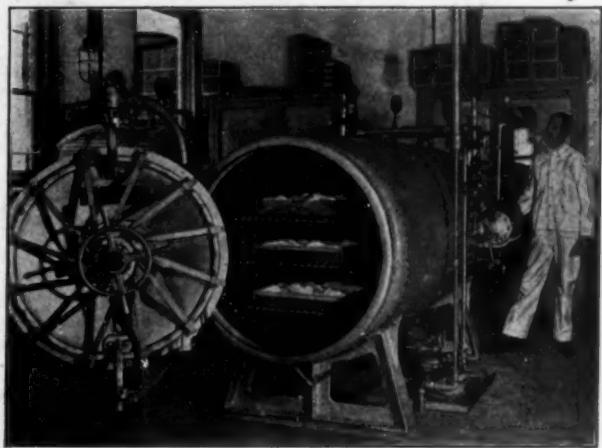
April 20. Dr. V. A. Moore, Dean of the New York State Veterinary College, Cornell University; Dr. A. C. Abbott, Director of the Laboratory of Hygiene of the University of Pennsylvania; Prof. E. G. Conklin of Princeton University; Prof. P. H. Mitchell, Brown University; G. Fuller, Engineer and Sanitary Expert of New York.

Our Country; its need is our need; its honor our honor, its responsibility our responsibility. To support it is a duty, to protect it a privilege, to serve it a joy. In its hour of trial, we must be steadfast, in its hour of danger we must be strong, in its hour of triumph we must be generous. Though all else depart, and all we own be taken away, there will still remain the foundation of our aims, the bulwark of our hopes, the beginning and the end—our country, our homeland, America!—(American Medicine).

In chronic bronchitis, the bronchi and the peribronchial tissues are affected, and there is a bacterial infection of the mucous membrane with staphylococcus, streptococcus, pneumococcus, influenza bacillus catarrhalis or certain saprophytes.

The Seven Stages of Catgut Preparation

The research work of our experimental laboratory, covering a long range of years, has proven that seven processes are necessary in the preparation of catgut ligatures to retain the strength and natural characteristics of the gut.



These seven processes are as follows:

1. Immediate disinfection and cleansing of the raw intestines directly after they leave the sheep. The removal of the various coats of the intestines, leaving the submucous coat.
2. Disinfection and chromicizing of each gut before twisting to make the strand.
3. Twisting the guts into a strand.
4. Testing the strands for strength and placing the gut string within the envelope or tube.
5. Final sterilization after the tubes or envelopes are sealed. No final confidence is placed in sterile handling. Everything in the ligature line is made sterile after closing.
6. Bacteriological test made of each lot,

7. Packed in boxes and the test number placed on each box containing one dozen ligatures.

In the Johnson & Johnson laboratories every step in the preparation of ligatures is checked and no hit-or-miss methods are tolerated. Each operative concentrates on one of the seven processes.

The result is a healthy, normal, animal tissue, sterilized, aseptic and unchanged in character, hence absorbable without reaction or disturbance of the wound-healing process.

An examination of a strand of Johnson & Johnson catgut shows a solid, firm texture of the cord, translucent, the twist hardly visible—the result of using clean intestines from lambs and of having them in right condition when twisted.

Send for sample and our "Handbook of Ligatures."

Johnson & Johnson

New Brunswick, N. J., U.S.A.

ALBANY ETHER
Pro Narcosi

An Ether Extraordinary

This Ether Sulphuric for anesthesia is prepared by a recently patented process of purification by which all of the impurities that are ordinarily found in Ether are entirely removed.

Our product has a boiling point of 34° to 36° Centigrade, a specific gravity of .709 to .710 at 25° Centigrade; it leaves no residue on evaporation and will show negative results when tested for impurities.

OUR CLAIM IS THAT NO ETHER EQUAL IN PURITY HAS BEEN OFFERED TO THE MEDICAL PROFESSION UP TO THE PRESENT TIME.

Hospitals only furnished with samples on application

ALBANY CHEMICAL COMPANY, Albany, N.Y.

The Calling Up of Medical Men of Military Age.

The attacks made by German submarines upon our hospital ships have determined the Government to take a step which as a matter of course must have been present to their minds for some time. It has been decided to call up every medical man of military age, and every practitioner in this category will become available for the army. The torpedoing of the hospital ships made clear the necessity of establishing a large number of new hospitals overseas, so that the provision abroad of the suitable hospital personnel should enable the number of wounded returned home to be sensibly decreased. Accordingly, Lord Derby has issued a letter from the War Office to the medical practitioners of the country explaining the situation clearly, and indicating that the extensive withdrawal from their practices in the country of medical men of military age must be answered by all who remain with offers to act in a general scheme of substitution, whereby the gaps in the home medical service may be filled as completely as is feasible.

The decision of the Government to call up medical men of military age will not come as any surprise. It has for some time been obvious that the demands of the War Office, which must be taken to be identical with those of the Army, for more medical officers could only with difficulty be met under any voluntary system. Under that system the country has received, and is receiving, the devoted assistance of thousands of medical men who have neither given heed to their financial present or their professional future, nor to the personal dangers of the medical soldier, as revealed in the evergrowing lists of our dead and wounded colleagues. The deliberations of the Central Medical War Committee have been strengthened throughout by intimate relations with the Local Government Board and the National Insurance Commission so that individual exemptions of medical men by the statutory tribunal have been considered both on their own merits and in respect to any public claims. The result of all this hard and careful work, carried on from day to day over a period of 20 months, had begun to suggest that the voluntary reply of the medical profession had been given in entirety, and that further demands upon the practitioners of the country to take commissions would have to be based upon a scheme of general calling up of all those of military age, combined, it might well be, with modifications in the employment of medical officers whereby economy of

material would be ensured. Just when affairs had reached this position came the unspeakable onslaughts by the German submarines upon the Red Cross ships, and the decision of the War Cabinet to call up at once under the Military Service Acts all medical men of military age followed immediately.

The onus of responsibility is now removed from all medical men of military age; they are called up, however, as a class and not as indistinctive citizens, and recent events have confirmed their central professional war committees in the resolve only to continue selecting doctors for military service if they are allowed to retain the decision how many and which individuals can be spared from civil work. To medical men above military age voluntary discretion remains, but in Lord Derby's letter the hope is expressed "that every doctor over military age will immediately offer his services to the Local Medical War Committee of his area as willing to undertake any substitution work within his capacity which would help to release any man of military age who cannot otherwise be spared." Acceptance of this invitation will be easy for some men and extremely difficult for others, the considerations ranging themselves under such headings as age, health, locality, and equipment, and requiring no further analysis to make their force apparent to medical readers. We trust earnestly, and we believe, that those whom the call to substituted service finds in positions where response has less difficulty, will co-operate quickly with the Local Medical War Committees as to the effective utilization of their services. It is said of all voluntary systems that the willing men are those who make the greatest sacrifices, and with this our profession, which has borne so much during the war, must not be reproached. There is need for promptitude in the giving in of names at the local centers, for the organization of the measures possible for maintaining essential medical services, while meeting the demands of the Army, cannot be of a simple nature. Every hour will probably be of value.—(*Lancet*, April 28.)

Diminutive and large rents in the colon and sigmoid, are repaired by a purse string, or double infolding sutures; but where the mesenteric vessels are injured, or the rectum, sigmoid or colon, are extensively damaged, the bowel is resected, excluded or sutured, or an artificial anus is established by suturing the gut in the abdominal incision.—GANT.

A Real "Rest" Vacation



Doctor, some of your patients will be needing a vacation soon—a change of scene, restful diversion and a taste of the outdoor life.

Such patients are cordially invited to Battle Creek where everything is scientifically planned for rest, recreation and health-building—where the patient eats, sleeps and lives in a wholesome and "biologic" way.

The bill of fare at Battle Creek is simple, delicious and appetizing. A corps of twenty trained dietitians are always at hand in the dining halls to assist the patient in selecting foods best adapted to his individual needs.

Ample facilities for the outdoor life encourage health-building diversions. Graduated exercises meet the particular needs of the more feeble patients.

If needed, a complete physical examination and treatment are available through the most scientific equipment. Forty specializing physicians, three hundred highly efficient nurses, nearly a hundred trained bath attendants and an able corps of physical directors are at the service of vacationists.

Literature descriptive of the vacation advantages of Battle Creek will be sent free upon request to any physician.

THE BATTLE CREEK SANITARIUM, Box 335, Battle Creek, Michigan

Clinical Experience Shows

That the early administration of Sherman's Bacterial Vaccines will reduce the average course of acute infections like Pneumonia, Broncho-pneumonia, Sepsis, Erysipelas, Mastoiditis, Rheumatic Fever, Colds, Bronchitis, Whooping Cough, etc., to less than one third the usual course of such infectious diseases, with a proportionate reduction of the mortality rate.

Not opinions but clinical facts confirm this contention.

Bacterial Vaccines are also efficient therapeutic agents in sub-acute and chronic infections.

Sherman's Bacterial Vaccines are marketed in standardized suspensions.

Write for literature.

MANUFACTURER
OF
BACTERIAL VACCINES
G.H. SHERMAN, M.D.
Detroit, Mich.
U.S.A.

3334 Jefferson Ave.

The Bacillus Acidophilus

B. Acidophilus is an organism of high acid producing (antiputrefactive) qualities whose NORMAL HABITAT is the HUMAN INTESTINE.

To ensure a sufficiency of this natural defensive organism, when depletion or extinction occurs from any cause whatever, we now offer this B. Acidophilus as a new therapeutic agent.

Supplied in three forms under—

Registered name—BACID (applied for)	Liquid Capsules Tablets
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Descriptive circular on request.

**THE ARLINGTON CHEMICAL CO.
YONKERS, N. Y.**

The Application of the Bacillus Acidophilus in Intestinal Therapy.

There occur normally in the adult human intestine, acid producing bacteria related to the Gram positive organisms characteristic of the flora of healthy nurslings. The bacillus acidophilus and similar organisms are of this type. As the experiments of Rettger, Kendall and others have shown, a suitable diet will materially increase the numbers of these bacteria within the intestinal canal, at least in some instances. Torrey, in a recent study of the fecal flora in typhoid fever, noted that in those patients whose intestines were inhabited to a marked extent by bacteria of the acidophilic type the infection ran a short and mild course.

In 1900 Moro and Finkelstein described almost simultaneously the organism that is now known as the bacillus acidophilus. The discoveries of these early workers gave rise to a long series of investigations from which has developed the fact that what appeared to be different strains of the bacillus were indeed different, but closely related individuals.

These bacteria, in common with the bacillus bulgaricus, are fermentative in nature and liberate the acid which is so inhibitive to the development of those putrefactive bacteria whose activities are an important factor in intestinal toxemia. Life in any form is impossible without protein metabolism, but while the bacillus acidophilus may grow with the greatest luxuriance in the presence of unlimited available protein, the presence of substances indicative of protein decomposition, such as indol, and skatol, cannot be demonstrated when this bacillus is grown in pure culture. On the other hand, not only are all the common carbohydrates attacked and converted to acid, but the acid itself, until its concentration becomes relatively very high, does not inhibit the bacillus which gives rise to it. An acid intestine is less likely to harbor injurious bacteria than an alkaline one.

More than five years ago, Rotch and Kendall recognized the practical difficulties in acclimatizing the bacillus bulgaricus in the digestive tract and suggested for that purpose the use of an acidophilic organism. Among the acidophilic bacteria there are apparently certain strains that are peculiarly suitable for intestinal therapy.

The Arlington Chemical Co. of Yonkers, is preparing this bacillus for physicians' use, in capsules and liquid cultures.

A Vacation at Battle Creek.

The idea of spending a vacation in a sanitarium may seem odd to one who does not understand how a great sanitarium is conducted to-day. Its healing devices do not stop with the procedure set down in medical text books, but include agreeable surroundings and healthful diversions of many kinds to keep patients from brooding over their troubles. Exercise is taken in such attractive and varied forms that it becomes a delight. A sanitarium managed on such lines offers all the pleasures and attractions of an ordinary summer resort, and much besides. The business man who thinks he is merely run down and needs only rest, knows that in such an institution, a corps of experienced physicians, backed by complete diagnostic apparatus, can tell him exactly wherein his mechanism is showing signs of wear and just what repair processes he needs. He knows that instead of the rich, haphazard menu of our expensive hotel, he will have the foods which he needs, skilfully prepared to tempt his appetite. Late hours and nerve-racking amusements will be replaced by rational pleasures. Best of all, a course in health training will enable him to return to his work with a knowledge that will increase his efficiency and lessen the likelihood of ill-health. That this attitude is widespread is shown by the fact that the patronage of the Battle Creek Sanitarium in summer is much greater than in winter.

Treatment of Nervous Diseases Among Soldiers.

The National Committee for Mental Hygiene has created a subcommittee on furnishing hospital units for nervous and mental disorders to the United States Government, the project having been approved by Surgeon General W. C. Gorgas of the U. S. Army.

This subcommittee, of which Dr. Pearce Bailey of New York is chairman, is authorized to secure the services of alienists and neurologists to be commissioned in the Officers' Reserve Corps, Medical Section, and to serve in the neuro-psychiatric units which are to be attached to the base and other hospitals of the military services of the United States. Further information will be given, and application forms sent to physicians qualified in this branch of medicine, on application by letter or in person to The National Committee for Mental Hygiene, 50 Union Square, New York.

Stanolind
Trade Mark Reg. U. S. Pat. Off.
Liquid Paraffin
(Medium Heavy)

Tasteless — Odorless — Colorless

In Treating Hemorrhoids

STANOLIND Liquid Paraffin, used regularly, very generally relieves hemorrhoids and fissure, even when of some years' standing.

Since these morbid conditions are usually the result of constipation, and are aggravated by straining, Stanolind Liquid Paraffin aids by rendering the intestinal contents less adhesive, by allaying irritation and thus by permitting the disengaged tissues to become healed.

Where a contraindication for operative treatment exists, the use of Stanolind Liquid Paraffin in these conditions will frequently give relief from distressing symptoms and may even permit the parts to be restored to a condition where operative procedure may be postponed.

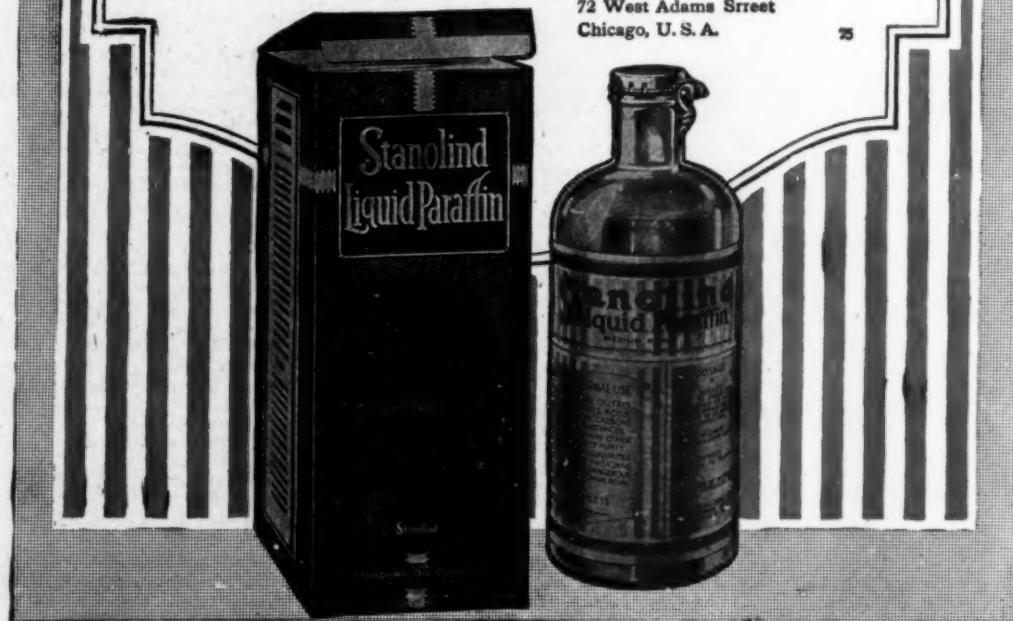
The *special advantage* of Stanolind Liquid Paraffin lies in the fact that its beneficial effects are not diminished by continual use, as is the case with almost any other laxative.

Stanolind Liquid Paraffin acts by lubrication and by adding bulk to the indigestible intestinal residue.

A trial quantity with informative booklet will be sent on request.

Standard Oil Company

(Indiana)
72 West Adams Street
Chicago, U. S. A.



ENTOL

ABSTERGENT
DEODORANT

TRADE MARK
REG. U. S. PAT. OFF.

PROPHYLACTIC
ASTRINGENT

ENTOL is a highly antiseptic and agreeable lotion of pronounced efficacy due to Zinc Chloride combined with Thymol, Boracic Acid, Benzoic Acid, Saccharin, Glycerin, Eucalyptol, Alcohol, (Cologne Spirits) 10%, Methyl Salicylate and Essential Oils. You will note that Entol Does Not Contain Formaldehyde.

ENTOL is indicated as a gargle and mouth wash in all forms of Pharyngitis, Laryngitis, Tonsillitis, Gingivitis, and Pyorrhea Alveolaris.

As a dressing or lotion to bathe the parts afflicted, ENTOL is highly beneficial for Abrasions of the Skin, Burns, Pruritus, Eczema, Dermatitis and all forms of skin irritation.

A liberal sample will be sent on request.

ENTOL PRODUCTS CO., Inc., 1009 Columbus Ave., New York

Hay Fever *To the Initiated* Suggests Escharol

The results obtained warrant its use in every case of ROSE or HAY FEVER, and all Hyperplastic conditions of the Nasal Mucosa.

It relieves Hypersensitiveness and makes unnecessary the removal of the patient from the influence of pollen and other emanations which act as exciting causes. A TRIAL WILL CONVINCE.

Samples to the Profession on Request

LATO PHARMACAL CO., 15-25 Whitehall St. New York



Hypodermic Medication.

Hypodermic medication usually means emergency medication. When the occasion for it arrives, the physician, if he is to employ a tablet solution, is fortunate if he has tablets upon which he can depend. The failure of the tablet is his failure—he cannot shift the burden of responsibility. And tablets for hypodermic use, to be reliable, must possess a number of important qualifications. They must be true to label; they must be active; they must contain a definite amount of medicament; they must be soluble.

These thoughts were vividly impressed upon the mind of the writer upon the occasion of a recent visit to the hypodermic-tablet department of Parke, Davis & Co. Here we see hypodermic-tablet manufacture reduced to a science. Here we find tablet-making facilities that exist probably nowhere else in the world. The equipment is complete to the last degree. The department is spacious, light, airy, clean. It is supervised by an expert who has specialized for years in this branch of manufacturing pharmacy and who has selected his assistants with discrimination. Every worker is an adept. Every hand is schooled to its task.

In the manufacture of Parke, Davis & Co.'s hypodermic-tablets the components of the various formulas are weighed and reweighed, checked and rechecked by two experienced pharmacists working independently, one acting as a check upon the other, thus guarding against the possibility of error.

Analga (Walker).

It cannot be said the physician's choice of a local analgesic in ointment form is limited. He is, however, somewhat restricted by their limitations. Because of the extreme irritation likely to be produced he has had to caution against use where the surface was inflamed or broken.

Analga (Walker) obviates this element of risk. It is at once efficient and non-irritating. In effect a pronounced refrigerant, stimulative, antiseptic, analgesic. The exceptional character of its base (largely animal) facilitates and increases its action, adds to its cleanliness and agreeableness and tends to minimize the usual ointment disadvantages.

This product is put up in absolutely plain containers with slip-off label. A six-dram size is mailed postpaid to physicians on receipt of professional card.—Address The Walker Manufacturing Co., Buffalo, N. Y.

For Gynecological Use.

Most physicians have occasion to make use of the tampon, which has its disadvantages. In treating certain inflammations of the vaginal mucous membrane and of the cervix, the physician can find considerable assistance by employing Micajah's Medicated Wafers. This preparation contains valuable astringent, germicidal, and mildly stimulating agents, the sum total of whose action is to oppose abnormal glandular activity, vascular congestion, and loss of tissue tone. Interesting literature has been prepared by Micajah & Co., Warren, Pa., and will be sent together with samples to any physician, on request.

Micajah's Medicated Wafers are also useful when dissolved in water and applied as a dressing in the treatment of leg ulcers, venereal sores, etc. They are particularly well adapted for an addition to the vaginal douche and have also been employed with good results as an application for cervical erosions or ulcerations in which operative procedure is either contraindicated or refused by the patient.

Pruritus.

Even in severe forms of genital, anal, diabetic, eczematous itching, K-Y Lubricating Jelly in a great majority of cases, will bring relief, or at least grateful alleviation.

To anoint the skin in these conditions, K-Y Lubricating Jelly is not only effective, but convenient and economical, since it can be used without staining or soiling the bed clothes or the patient's linen. If the part is washed before each application, the best results are obtained.

When pictures look alive with movements free,
When ships, like fishes, swim below the sea,
When men, outstripping birds, can scour the sky,
Then half the world, deep dyed in blood, shall die.

Written by Mother Shipton—1510.

Presentation of a Loving Cup.

On June 2nd a loving cup was presented to Dr. Thomas E. Satterthwaite of New York, at the annual banquet of the American Therapeutic Society, by its members. The inscription on the cup stated that it was given as "a token of esteem and in recognition of his faithful and valuable services to the Society and to the medical profession." The presentation was made by Professor O. T. Osborne, of Yale University.

Dioxogen

The Purified and Stable Peroxide of Hydrogen

The war has enhanced the reputation of Peroxide of Hydrogen as an efficient means of treating infected wounds. Its remarkable oxygenating effects, when employed for Tetanus and Gas Gangrene, have been vouched for by a long list of surgeons and especially of French surgeons.

The results gained from its use alone or in conjunction with other antiseptics have fully borne out the oft-made assertion, that in the treatment of infected wounds, or in any conditions in which the employment of a germicide is called for, Peroxide of Hydrogen holds a position second to none.

DIOXOGEN surpasses the ordinary preparations of Peroxide of Hydrogen in the following salient features:

DIOXOGEN is nearly half again as strong as ordinary Peroxide and is practically free from impurities;

DIOXOGEN is possessed of extraordinary stable properties—a most essential property—especially in time of war. Its loss will not exceed five per cent. in a year;

DIOXOGEN has great germicidal powers, it oxygenates and thus inhibits the growth of microorganisms, and is harmless to healthy tissue;

DIOXOGEN does not change in taste, color or odor, as do the acetanilid preserved solutions.

In short, while the effects of even the carelessly made solutions of Peroxide of Hydrogen are good, those of DIOXOGEN—because of its freedom from defects—are infinitely better.

Physician's sample will be gladly sent on request

THE OAKLAND CHEMICAL COMPANY
10 ASTOR PLACE
NEW YORK

The best place for rest or recreation
or recuperation is

ATLANTIC CITY and CHALFONTE

is especially well adapted to accommodate those who come to secure them.

Write for Illustrated Folder and Rates to

THE LEEDS COMPANY

On the Beach

Always Open

Wilford Hall Laboratories Port Chester, New York

The most modern plant in America for
the manufacture of Surgical Dressings,
Plasters, Medicated Soaps, etc.

Scleroderma and Graves' Disease Benefited by Implantation of Human Thyroid into the Bone-Marrow.

Little explained to the dermatological section of the Royal Society of Medicine the case of a lady, aged 52, who in 1902 presented the symptoms of Graves' disease to a mild extent. In 1908 she developed myxedema. Her pulse-rate, however, still continued to be 120 and her blood indicated marked anemia. Periods of irregular fever with urticarial swellings, as well as pains in the shoulder and neck, bothered her so much that she had to be carried in a chair. The scleroderma became evident in 1910, affecting chiefly the fingers, forearms, face, and thighs. The stiffness became so extensive that she was greatly crippled. The mental accompaniments of myxedema, dullness and lethargy were conspicuously absent.

Implantation of thyroid was made into the tibia in 1911. Following this the scleroderma was much improved. She was taking idiothyroxine at this time. In 1912 a second implantation of thyroid tissue was made. In 1913 pyorrhea alveolaris was diagnosed. After having all her teeth removed,

there followed a remarkable change in her general appearance, an improvement which has been steadily maintained. At present the fingers have become flexible enough to permit her to play the piano. The skin of the face is supple and otherwise normal.—(Surg., Gyn. and Ob., Sept., 1916.)

Emptying the Tissues of Fluids.

As a means of emptying the tissues of the accumulated fluids in dropsical conditions Anedemin has gained wide vogue among practitioners. In cardio-renal diseases Anedemin acts by steadyng the heart, adding to its propulsive force, and increasing the renal function through its diuretic effect. This double influence of Anedemin makes it an agent of pronounced worth in all dropsical states, in which it is the therapeutic agent of first choice with many able practitioners. Anedemin is a well balanced preparation, and he who employs it may know that he is using a well tried combination of drugs in dropsical effusions. Write for samples, they come cheerfully from manufacturers—Anedemin Chemical Co., Chattanooga, Tenn., U. S. A.